T, OCTOBER 8, 1936

FIRST AERO WEEKLY IN THE WORLD

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OCT 22 1936

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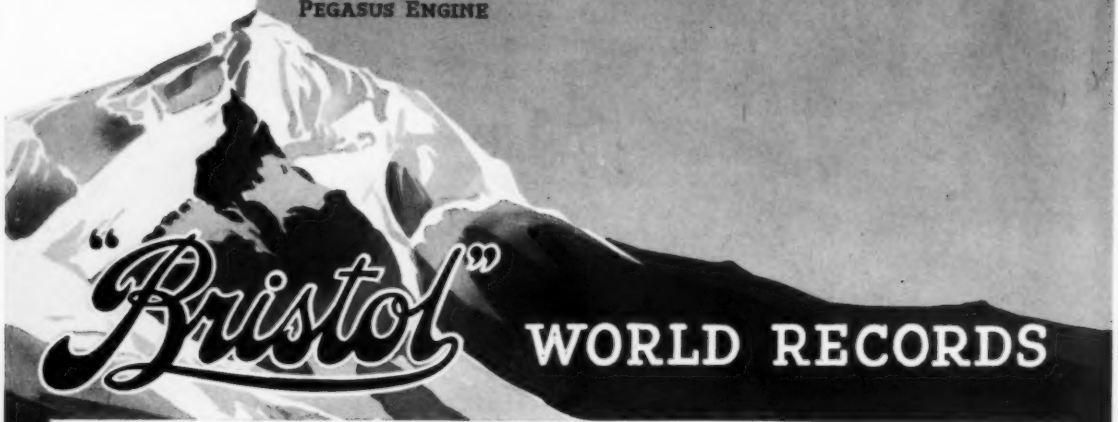
FIRST OVER EVEREST 1933
PEGASUS ENGINE



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FLIGHT

The AIRCRAFT ENGINEER AND AIRSHIPS

FIRST AERONAUTICAL WEEKLY IN THE WORLD : FOUNDED 1909

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Unpreparedness

NO useful purpose would be served by blinking the fact that the England-Johannesburg air race was a complete fiasco. It was worse than a fiasco, it was a tragedy. Out of fourteen entries there were nine starters, of which but a single machine completed the course. The world at large is busy hoisting its shoulders high in the air, spreading its hands or grinning crookedly, all according to individual national characteristics, and is saying that there must be something seriously wrong with British civil aviation. And, frankly, one cannot blame the world for that attitude. We have fully deserved it, and it will take British aviation a very long time to live down the memory of this unfortunate event.

Three things at least have been thrown into strong relief by the Schlesinger Race: The pilots who have established London-Cape records, such as Mr. and Mrs. Mollison, Tommy Rose, Llewellyn and others, have accomplished greater achievements than was generally realised by gradually clipping a few hours off the record time; the difficulties of running a *regular* air service between London and the Cape in all sorts of weather, such as is done by Imperial Airways, are far more formidable than can be appreciated by those without intimate knowledge of the route; and a six thousand miles race down through Africa is not to be undertaken without very thorough preparation, training and testing.

The sorry history of the race is told elsewhere in this issue of *Flight;* the most that can be hoped for after perusing it is that certain lessons may be learnt so that never again shall there be a repetition. But for the fact that the race has cost valuable lives, one might even have said that the Schlesinger Race fiasco may prove a blessing in disguise if it serves to shake us out of our complacency, makes us see to it that the next time Britain attempts an event of any importance, she shall be fully and thoroughly prepared. The lamentable failure of last week's efforts is very largely due to unpreparedness in one form or another. Fortunately, the beating of the world's altitude record will have done much to counteract the bad impression created by the Johannesburg Race.

Somehow or other the impression seems to have got about that several competitors failed to get the ranges out of their machines which they had expected. The information available at present is far too incomplete and uncertain to make it possible to say whether this was actually so or not. Running short of fuel may not necessarily have meant, in all cases, an unsuspectedly high consumption but may have been due to longer time spent in the air due to headwinds, difficulties of accurate navigation, and so forth. There are those who believe that the use, by some of the competitors, of a very light fuel (specific gravity 0.717) may have had something to do with the matter, tankage being measured in gallons but power being more closely related to weight. Be that as it may, some competitors do seem to have completed at any rate the earlier of their previously contemplated stages. The introduction of extra tanks may in some cases have increased the fuel system complications, and may have been responsible for some of the difficulties.

Little Things That Matter

Oil and fuel system troubles which occurred may be counted among the minor defects which would probably have been discovered if pre-race testing had been a little more thorough and extended. The collapse of undercarriages, in no instance attended by serious injuries to crews, should not occur, certainly; but is there an aircraft manufacturer in the world who can aver, hand on heart, that he has never had a retractable undercarriage retract when it was not meant to do so? Normally, little harm is done, but in a race such a

relatively small mishap is enough to put a machine out of the running.

The loss of Findlay and Morgan in the Envoy is a blow to British aviation, but no mystery surrounds the accident. The machine failed to clear some trees and crashed. It seems likely that had variable-pitch airscrews been fitted, this particular accident might not have occurred, but it should be remembered that every improvement in an aircraft is accompanied by a corresponding increase in the demands made upon it, and we shall never avoid entirely the risk arising from a pilot demanding from his machine just that little bit more than it is capable of giving.

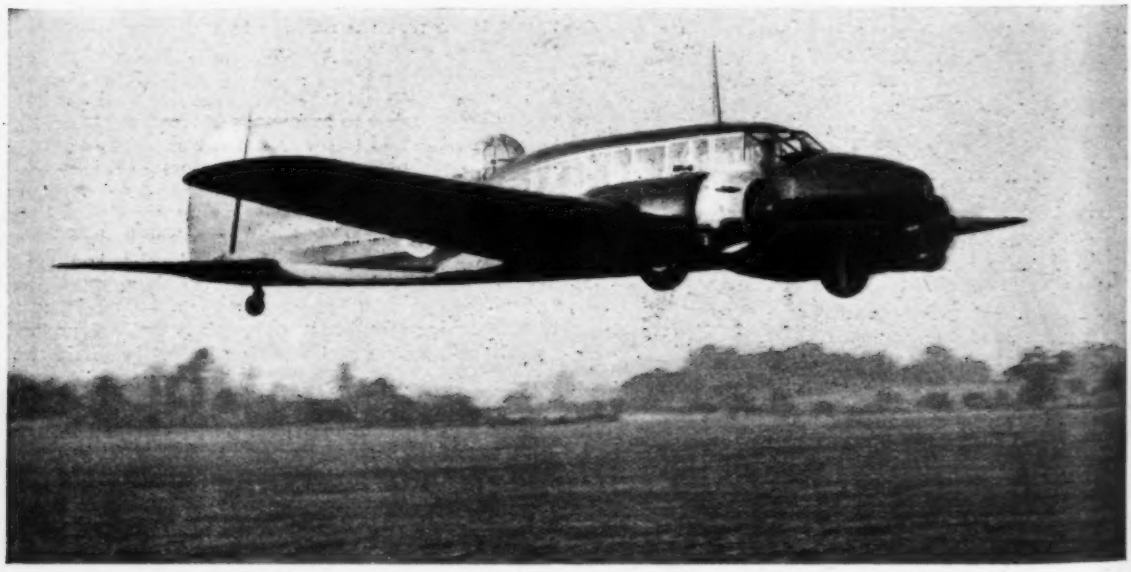
Good Form

THE number of fatal accidents of late in private flying has been distressing, and it is hard to resist the conclusion that most of them could have been avoided. In Service flying the watchword of pilots must needs be "Daring," but in all other descriptions of flying the watchword ought to be "Caution." Caution is also impressed on R.A.F. pilots, and if orders and regulations were obeyed as they ought to be there would be fewer casualties in the Service; but avoidance of all risks can never be expected of a fighting Service. In regular transport companies, where passengers are carried, safety is always the first consideration, and avoidable risks are very seldom taken. The occasional accidents which do happen can be compared with the occasional railway accidents and shipwrecks. In club flying, as our contributor "Indicator" mentioned in his remarks on this question recently, rash behaviour is sternly repressed by the instructors and therefore very seldom occurs. Certain types of pilot outside these categories, however, are to a great extent independent of such restraining influences, and if they wish to take risks it is very difficult for anybody to say them nay.

The public which reads the newspapers seldom troubles to distinguish between one class of flying and another. If people read of three fatal crashes in a week they inevitably tend to conclude that flying is still a very dangerous operation, and that is very bad for the interests of the movement. There is no "news value," as the papers call it, in the thousands of flights which are made with perfect success every year; but fatal crashes still make their way into the headlines on the news pages. One cannot blame the papers for giving prominence to the tragedies, for any sort of catastrophe is always important news. What is needed is to reduce the number of serious accidents.

Most of the serious accidents to private aeroplanes could have been avoided if the pilots had obeyed all the rules which they had been taught, and had added to them a modicum of common sense. Sometimes familiarity (for a period which seems longer to the pilot than it really is) has bred a contempt for the dangers which always attend rash behaviour in the air. Sometimes the pilots themselves are rash and inconsiderate by nature. To often the desire to "show off" has resulted in disaster. Whatever the ultimate cause may be, the actual reason for a crash is nearly always sheer bad flying.

Further rules and restrictions by the Air Ministry are not the remedy which is required. The right to risk his neck is one to which every Briton clings with innate tenacity, and so long as that risk concerns only himself and his family it is not a good thing for the State to interfere. Pilots, however, are still not to be considered mere private persons. Each one of them has it in his power to help on or to damage the cause of air progress, and therefore the neck of each one of them is a matter of public interest. The reputations of all other pilots suffer to some extent when one of the air community is guilty of deliberate or neglectful bad flying. Public opinion among pilots themselves is the lever which ought to reduce this sort of flying and the consequent death roll. Every new pilot, and some who are not so new, ought to be made to realise that to fly carefully and considerately is *good form*.



IRONING THE GREENSWARD: An aeroplane flying at "no altitude" with its undercarriage retracted is always an impressive sight. Here is another view of one of the Avro Ansons for Finland (others were published last week) being flown in a spectacular manner by Flt. Lt. Geoffrey Tyson. (*Flight* photograph.)

The Outlook

A Running Commentary on Air Topics

German A.A. Artillery

MAJOR GEN. TEMPERLEY, military correspondent of the *Daily Telegraph*, has recently witnessed the manœuvres of the German Army. Writing of his impressions, he says: "One feature of the Army which caught the eye of the observer was their anti-aircraft artillery. It was recently transferred to the Air Force, and I cannot doubt that the decision is a sound one. It provides a far greater stimulant to development, and ensures the closest co-operation."

That is the opinion, not of an Air Force officer, but of a soldier who cannot be accused of air bias. Moreover, he was writing about aircraft as an arm of the Army in a land campaign, where close co-operation between aircraft and A.A. guns would not seem so essential as it undoubtedly is in a purely air campaign such as is envisaged in the air defence of Great Britain. In the German manœuvres the Army generals were supreme. In the air defence of Great Britain the Air Ministry and the Air Officers Commanding-in-Chief would be in charge of everything. Yet in Britain the War Office continues to provide the A.A. guns, the searchlights, the sound-locators, and the men of the Territorial Army who operate them all. Certainly the air officers take command of the Territorial units and move them about as required; but the latter work under a Ministry which has not raised them and which can neither reward them nor punish them. That is not the way to "stimulate development and ensure the closest co-operation."

British and Foreign in Australia

IN flying circles in Australia there are two parties, one of which is all for using British aircraft, while the other believes that the United States produces the machines most suitable to Australian conditions. Not long ago the Government decided to admit the import of foreign aircraft on the same terms as those of British manufacture, and some supposed that there would quickly be a rapid increase in the number of American machines in use.

This, however, has not happened; at least, it has not yet happened. According to a report of the Civil Aviation Board of Australia, which shows the position on September 1 last, only three subsidised companies are using foreign aircraft. Holyman Airways uses the Douglas D.C.2 on the route between Melbourne, Launceston and Hobart, a distance of 408 miles which is flown six times a week in each direction. On their other services this company uses the D.H.86, the Rapide and the Dragon. Aircrafts Pty., Ltd., which flies once a week in each direction on the 250 miles between Brisbane and Cracow, and also plies on the 325-mile route, Brisbane-Bundaberg-Rockhampton, uses the Waco and the Dragon. The Commercial Aviation Co., which has a run of 150 miles between Adelaide and Whyalla, and covers it twice weekly in each direction, uses the Fokker Universal and the Fox Moth. All other subsidised concerns use British types exclusively.

Of unsubsidised transport services, Airlines of Australia, Ltd., patronises the types Stinson A with three Lycoming 235-h.p. engines and the Avro X. It plies twice daily and once on Sundays in each direction over the 500 miles between Sydney and Brisbane. Ansett Airways uses the Fokker Universal type on a daily service in each direction between Melbourne and Hamilton, a route of 160 miles. All the other unsubsidised companies, whether carrying mails or not, remain faithful to British types. And it may be noted that it is the users of British types which operate the longer and more important services.

Fenland Plastics

BIG oaks from tiny acorns grow, and it may well be that the planting of a small acorn last Saturday at Duxford forms the beginning of a very big industry. Dr. Norman de Bruyne has for several years been interested in new forms of aircraft construction and new aircraft structural materials. Some years ago he designed and built a little monoplane, the "Snark," which incorporated certain unusual structural features; moreover, his methods of stressing were not altogether the accepted ones, but he convinced Farnborough of their soundness, built his machine, and afterwards made a tour of Europe in it. Having thus proved that he was qualified to deal with aircraft structures and, what is less common, that his touch with practical flying was a close one, Dr. de Bruyne began to look around with a view to seeing how he could work in with existing research organisations while still continuing to lecture at Cambridge.

Ways and means were found, and Aero Research, Ltd., is now in a fair way to become a useful and very interesting unit in British aeronautical research.

The qualities of synthetic resins have been known for a good many years, and materials of this basis have already found extensive applications in connection with wireless, electrical work, and many other spheres. Their usefulness in aircraft is only just beginning to be realised, and at present they suffer from a serious defect, regarded as structural materials, in that their modulus of elasticity is very low. Reinforcing, or filling, with other materials, such as fabric or vegetable fibres, has been found capable of improving the characteristics demanded of an aircraft structural material, and already promising results have been obtained, although there is still a long way to go before filled resins can take their place in the aircraft industry.

The time may come when the main components of an aircraft are simply pressed out in large moulds. That time is not yet, and until it arrives one of the crying needs seems to be for a suitable cement wherewith to join together two or more pieces of the synthetic resin material. Dr. de Bruyne has already been experimenting in this direction, as a specimen rib under test load demonstrated. So far, however, the permanence and imperviousness to weather effects still has to be fully proved.

Getting Together

THE present position may be summed up by saying that the plastics industry knows a lot about synthetic resins but little of aircraft requirements. The aircraft industry knows little about plastics but realises the potential uses of synthetic resins. Dr. de Bruyne and his associates in Aero Research, Ltd., may become the meeting point of the two industries, collecting, sorting, classifying and evaluating the available information, examining the possibilities of improving one industry's products to meet the other industry's requirements, and generally serving as the interpreter between two great industries which at present do not understand each other's language too well.

Handled in the right way, and Dr. de Bruyne appears to have the qualifications for doing so, the undertaking may well be the forerunner of a new and important chapter in the history of British aviation.

Mr. I. W. Schlesinger, the donor of the £10,000 prize money. He has generously suggested that the finishers' money which will remain unclaimed should be paid to the dependants of Findlay and Morgan, who met with a fatal accident in the race.

Mr. Giles Guthrie and Mr. C. W. A. Scott. Above is their victorious V[ega] Gull (I[nset] Connop Guthrie. A description of the machine and its e[ngine] ap[pears]

ONE OU[T] o[f]

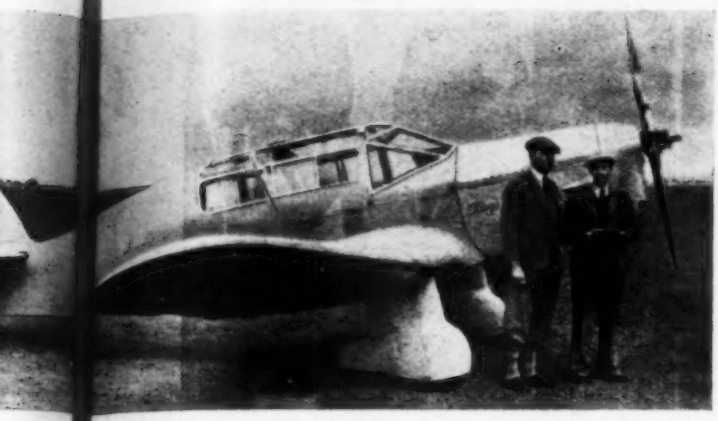
How C. W. A. Scott and Giles Guthrie (Ve[ga] Gull) Johannesburg Race : Tragedy Mars the Even[t] Clos[e]

TWO days, four hours and fifty-seven minutes after the start at Portsmouth Airport (fully described in *Flight* last week) the Schlesinger African race had been won by Mr. C. W. A. Scott and Mr. Giles Guthrie in a Percival Vega Gull. They covered 6,150 miles at an all-in average of 116 m.p.h. and at a flying average of 156.3 m.p.h. When Scott put down at the Rand Airport, Germiston, the Vega Gull was one of the only two machines definitely still in the race, and a few hours later tragedy overtook the other—the Airspeed Envoy flown by Findlay and Waller.

Meanwhile, the only remaining possible finishers, F/O. Clouston (Miles Hawk Six) and Victor Smith (Miles Sparrow Hawk), were held up respectively at Khartoum and Salonika. The former was awaiting the arrival of a spare piston and the latter had found that his oil supply had dwindled and that there was a serious outflow from the front of his engine. Actually, it turned out that the return valve in his oil tank had been choked and that his engine was, consequently, more or less full of oil. Not unnaturally, the oil emerged from the forward bearing. Eventually he pushed on to Khartoum, but retired again there when he realised that he could not possibly finish in time.

When F/O. Clouston took off again he had about two days in which to cover the remainder of the course—a matter of 3,000 miles. He flew about 2,300 miles to Entebbe and Mtoko, where he landed owing to fuel shortage, and took off again with bad weather ahead of him. He was overdue by several hours on Saturday evening, and was eventually discovered with his wrecked machine about 150 miles south of Salisbury.

A refresher for Victor Smith at the turning point at Belgrade. He retired his Sparrow Hawk at Khartoum after earlier delays, though at one time it looked as though he might be a finisher.



(D.H. Gipsy Series II engine) entered by Mr. Guthrie's father, Sir ... ent appears on pages 360c and 360d. (*Flight* photograph.)

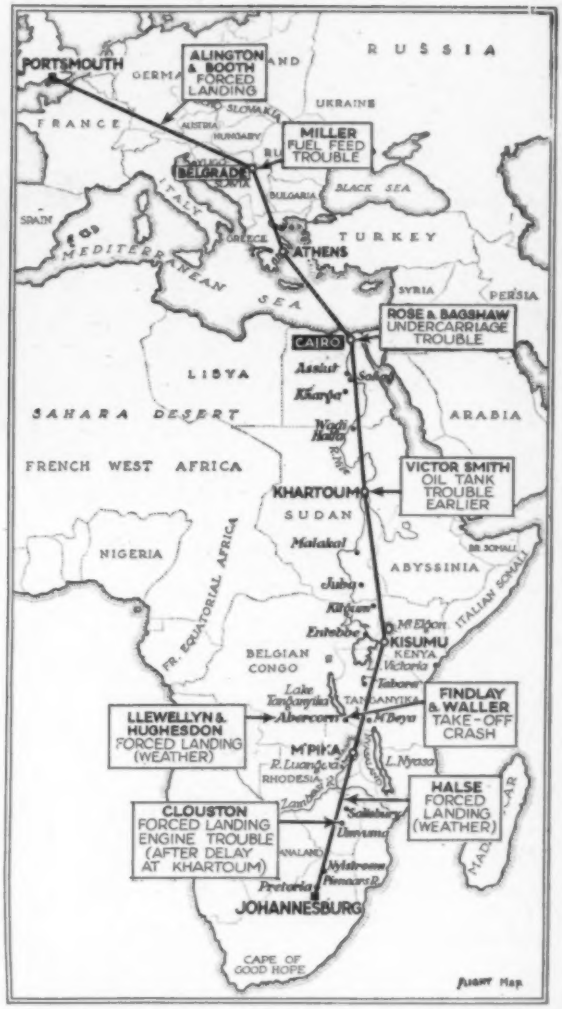
...OUT of NINE

...rie (Vega Gull)—*the Only Finishers—Won the England-...he Event* ...Closing Stages : Progress Hour by Hour

So, out of nine starters only one machine completed the course.

Even though the competitors' average in such a race is high, it is as difficult to remain patient while awaiting news of the machines as it is to realise that no news *can* be obtained until they arrive at the first turning point or control. During the Australia race two years ago this preliminary silence was disturbing enough, and for the South African event the average range of each machine was greater and the number of entries much smaller. During Tuesday morning the world in general knew only that nine machines were in the air between Portsmouth and Belgrade—some of them flying at 8,000 ft. or more.

In London, at any rate, an inexplicable rumour was circulated at about 10 a.m. to the effect that Major Miller was down in France—a rumour which was to be unhappily justified in a different form some eight hours later—but the first real news concerned Flt. Lt. Rose, who had landed his B.A. Double Eagle at Linz to remedy a fuel feed trouble. An hour later he was reported at Vienna.



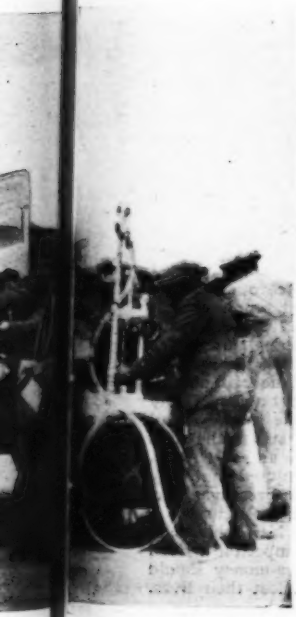
The unhappy tale of retirements at a glance. The fact that some retirements took place off the line does not mean that the competitors were off their course ; alternative courses were selected by various pilots.

Capt. Halse (Mew Gull) was the first to arrive at Belgrade, touching down at 12.8 p.m., and departing at 12.32 p.m. Then came Clouston (Hawk Six) at 12.42 p.m., the Envoy at 12.50 p.m., Victor Smith (Sparrow Hawk) at 2.4 p.m., C. W. A Scott (Vega Gull) at 2.8 p.m., and Llewellyn (Vega Gull) at 2.23 p.m. Eight minutes earlier the Double Eagle had circled the airport and flown on, but Rose returned and landed shortly afterwards for a weather report.

Late on the first afternoon there was still no news of Major Miller's Mew Gull, and it eventually transpired that he had made a forced landing some thirty miles short of Belgrade. The details of this and other happenings at the turning point are given in the interesting little story, by one of the observers there, which appears on page 355.

A message from Berlin explained that Alington's B.A. Eagle was down in a forced landing near Regensburg, Bavaria, and that the undercarriage had been damaged by the rough ground. Two machines were out of the race, and there were to be more out before very long.

At Almaza airport, Cairo, the order of the leaders still remained unchanged, Halse, Clouston and Waller arriving at 7.7, 7.39 and 8.8 p.m. respectively. Three hours later Scott



(Left) The Llewellyn-Hughesdon Vega Gull being refuelled at Vienna . (Above) F/O Clouston (Hawk Speed Six) who got nearer the goal than did any of the other non-finishers. (*Flight* photograph.)

Causing a stir at Cairo : C. W. A. Scott and—looking extremely wide awake—Flt. Lt. Tommy Rose.

and Llewellyn arrived within four minutes of one another. The Mew Gull had already averaged something like 180 m.p.h., covering the Portsmouth-Belgrade-Cairo section (2,249 miles) in a little over twelve hours.

The Double Eagle had suffered persistently from air-locks in the fuel system and Rose had already lost a good deal of time in making special landings at places which he certainly had not included in his schedule. His bad luck held to the bitter end when one of the undercarriage legs folded up while taxying at Cairo. At the time it seemed that something could be done about it, though hardly in the short period necessary to obtain a place; who was to know that there would be but one finisher? Then it seemed that the race was only to the swift and the strongly constituted.

Already the first five machines were on their way to Khartoum with hardly an hour between the first three, and the weather was favourable as flying weather goes. But Victor Smith had landed at Skoplje, between Belgrade and Salonika, with the previously mentioned trouble. At Khartoum Clouston was due to suffer a seized engine. When Halse arrived at Kisumu only four machines were left in the real race, but Halse's progress, though meteoric, was so regular that everyone felt confident that he would be at Johannesburg in less than thirty-six hours after the start.

He reached Khartoum a little less than an hour before Clouston, whose performance with a slightly slower machine was even more remarkable. Here Llewellyn and Hughesdon's Vega Gull arrived just two minutes before Scott's. Though unnoticed in the excitement caused by Halse's progress, this was surely an amazing duel. Waller, meanwhile, had put the Envoy down for fuel some three hundred miles short of Khartoum, at Kerma, between Wadi Halfa and Kareima. The machine eventually reached Khartoum at 9.30 p.m.

At 8 a.m. on the second day Halse was leaving Kisumu, Kenya, while the two Vega Gulls had only recently left Khartoum and the Envoy was still being anxiously awaited: By noon he had reached Mbeya, Tanganyika, but was beginning to feel the strain.

Then came the disappointing news. Within 700 miles of Germiston Halse had crashed his Mew Gull. When nearing Salisbury he had been unable to locate the aerodrome because of the masses of smoke from veldt fires and had landed in what appeared to be a suitable field at Bomboshawa while a little daylight still remained. Farth jammed in the Mew's spats after touching down and the machine went over on its back. Halse escaped at the cost of a dislocated shoulder and superficial injuries He was only twenty miles from Salisbury, but the poor visibility and the terrific bumps were probably proving too much for an already tired man.

A brilliant effort doomed to failure : Capt. S. S. Halse, who seemed well on the way to a runaway win in a matter of thirty-six hours, but eventually crashed twenty miles from Salisbury. (*Flight* photograph.)

Scott and Guthrie were now in the lead. From Khartoum they had flown direct to Kisumu, a matter of 1,100 miles, while Llewellyn and Hughesdon had flown to Juba, on the more "official" and safer route. When Scott arrived at Abercorn at 7.35 p.m. (to rest for seven hours) on the second day, after leaving Kisumu at 1.31 p.m., Llewellyn had not been reported since he passed over Entebbe at 2.15 p.m., after refuelling at Juba. The Envoy had reached Entebbe and had left again at 5.41 a.m. at the end of its second day's flying.

Nearing the Finish

The leading Vega Gull left Abercorn at 3.45 a.m., and it was Scott's intention to finish the race in one hop. At 8.30 a.m. it was sighted over Bulawayo with another 450 miles to go, but there was still no report of the second Vega. Then came the inadequate news that it had crashed on the shores of Lake Tanganyika, with the reassuring addition that neither Llewellyn nor Hughesdon was hurt. They had been endeavouring to find Abercorn in similar conditions to those which caused Halse's forced landing, had persisted in their search until their fuel was almost exhausted, and had eventually put down, partially writing-off the Vega.

Scott and Guthrie landed at Germiston at 11.34 a.m., and were met by Mr. Pirow, the South African Minister of Defence, by Mr. Schlesinger, and by Brig.-Gen. Sir Pierre van Ryneveld, who, with Gp. Capt. Sir Quintin Brand, was the pioneer on the route.

The banquet which was to have been given in their honour was cancelled when the sad news of the accident to the Envoy came through. When details were obtainable it was learned that after the machine had landed at Abercorn, Northern Rhodesia, in poor visibility, the wind changed round so that the only possible take-off was both uphill and towards some trees. If the Envoy had been flying in anything but a race Findlay and Waller would have waited for the wind to veer again—particularly as Abercorn is at an altitude of 6,000 ft. They were naturally unwilling to delay to restart and probably considered that the run would be ample despite the advice of the few people on the aerodrome. The Envoy struck the trees after the take-off, and both Capt. Max Findlay and Mr. A. H. Morgan, the radio operator, were so severely injured that they died almost at once. Mr. Ken Waller and the passenger, Mr. Derek Peachey, escaped with comparatively minor injuries.

Immediately he had learnt of the tragedy, Mr. Schlesinger wired to London to suggest that, if no other competitor arrived within the time limit, the balance of the prize-money should be given to the dependents of those who had lost their lives.

AT BELGRADE

IF the unfortunate air race to Johannesburg has done nothing else it has at least demonstrated the unbounded good will and friendship of the Yugoslavian nation. The choice of Belgrade as the European turning point was most fortunate, and the whole-hearted co-operation of the Royal Yugoslavian Aero Club and the military and civil authorities far exceeded all reasonable expectations.

To begin with, all customs and passport formalities were waived for competitors, and every aerodrome throughout the country was advised to assist and expedite the racers should they land. At the Belgrade airport a large marquee was set up, in which a buffet was provided by the Club. Weather reports for the routes to Athens and Cairo were posted at hourly intervals and a special telephone installed; a workshop bench with the appropriate tools was arranged at the refuelling base in case of need.

On the day of the race Maj.-Gen. Simovidch, the Chief of Air Staff, was present on the aerodrome to welcome Sir Ronald Campbell, the British Minister to Belgrade, and Lady Campbell, both of whom watched the passage of the competitors with the keenest interest. Mention must also be made of the energetic Commandant of the aerodrome, who personally supervised all the arrangements. The full extent of his co-operation was apparent later.

Tuesday morning broke fine and clear, although the forecast promised rain later in the day. The control was opened somewhat early, and it was not until after 09.30 hours that news was received of the nine competitors having left Portsmouth according to schedule. The first competitor was expected any time after 11.30 hours, but it was, in fact, just after noon that the first machine was seen approaching from the north-west at great speed. The Mew Gull was unmistakable and the bright red colour proclaimed it to be Halse's. He landed beautifully at 12.08 hours and quickly refuelled his aircraft and refreshed himself with coffee and sandwiches. Halse reported a trouble-free journey with good weather, and, pleased to find himself in the lead, he hurried off after only twenty-four minutes on the ground.

Miller is Missing

Everyone was on tip-toes expecting Miller, but the next arrival at 12.42 hours proved to be Clouston, who wasted no time at all and was refuelled and off again in the remarkably short time of twelve minutes. Whilst Clouston was still on the ground the Envoy arrived at 12.50 hours. The four occupants supervised the refuelling as a well-drilled team, and as a result this was quickly accomplished. Morgan, the radio operator, reported that his transmitter had stopped work twenty minutes after the start. Messages were accordingly sent to the radio stations at Athens, Salonika, Mirabella and Cairo asking that they should transmit at frequent intervals so that the Envoy could take cross-bearings on its D/F. receiver. The Envoy left at 13.16 hours with Waller at the controls, having been delayed some ten minutes by a stubborn starboard motor.

News had been received from Vienna that Tommy Rose, on the Double Eagle, and Llewellyn, on the Vega Gull, had landed and left again for Belgrade, but after Findlay's departure there followed an interval of three-quarters of an hour before the next arrival. Meanwhile, nothing had been heard of Miller, and anxiety increased as it became obvious that his fuel must by now be exhausted. The Mew Gull cannot be landed just anywhere, and there is much broken country between Portsmouth and Belgrade.

At 14.04 hours Victor Smith arrived, looking very cold in his open cockpit without an overcoat. His frozen condition was so evident that a kindly Yugoslavian mechanic insisted that Smith should borrow his leather coat, asking that in due course the coat, or its equivalent weight in gold, should be returned from Johannesburg! Closely on the heels of Smith the first of the Vega Gulls arrived, piloted by Scott, who was followed immediately by Tommy Rose on the B.A. Double Eagle from Vienna. According to planned schedule the Double Eagle circled the aerodrome and headed for Athens, but, as it was now raining heavily and the clouds were getting lower, Rose returned after a few minutes and landed for a weather report. Two minutes after the Double Eagle had touched down Llewellyn landed at 14.23 hours and proceeded to top up his tanks, with the intention of attempting a direct flight to Cairo. At 14.25 hours Smith and Scott took off together, the former looking much more comfortable in his borrowed coat.

Even at this stage of the race Scott and Llewellyn were hot rivals, and the latter, after a brief stop of thirteen minutes, took off cross-wind in an effort to catch his rival, who had a lead of eleven minutes. Tommy Rose did not refuel his Double Eagle and left, after a rest of fifteen minutes, for Athens. Rose remarked that "this was the wrong end to hurry," and although bad luck put him out of the race at Cairo the results showed that this policy would have been more than justified.

Two machines remained unaccounted for until news was received that the two Alingtons and Booth in the B.A. Eagle had left Nuremburg at 13.30 hours. If the same rate of progress was maintained they would not arrive at Belgrade before dusk. Enquiries from London elicited no news of Miller, and there seemed little hope that his machine could still be in one piece, when suddenly, at 16.25 hours, the white Mew Gull was seen approaching from the west, much to the relief of everyone. Miller told a real hard-luck story. Shortage of fuel had forced him to land with a "dead stick" only about thirty miles short of the aerodrome. There was no telephone and, despite the willing co-operation of the peasants, it took four hours to obtain twelve gallons of petrol (which was certainly *not* 87 octane!). His anguish was intensified because he saw three of the competitors pass low overhead without being able to attract their attention. Having eventually refuelled he was able to complete his flight to Belgrade in less than ten minutes.

Miller decided to abandon the race in view of his uncertain petrol consumption which would have upset his schedule, and because of possible damage to his engine from running on poor spirit.

Night—but no Eagle

Some people in England must have been mystified by the report that the B.A. Eagle had reached Belgrade. There was also much mystification in Belgrade. All unwittingly the Alingtons caused the sensation of the day. The rain continued to fall and the clouds were down to about five hundred feet when darkness fell. Flares had been put out and the floodlight held in readiness. The clock showed that the B.A. Eagle was due, and no news had been received to the contrary. All concerned had settled down to wait when what appeared to be the last flicker of a parachute flare was seen to come through the clouds about a mile from the aerodrome. Immediately the floodlight was lit and a continuous stream of rockets was discharged.

For the next two hours the anxiety was intense. One of the anti-aircraft listening posts reported having heard an engine and at intervals flares continued to drop through the clouds. The Commandant of the Zemun airport ordered all aerodromes in Yugoslavia to be lit, and even issued instructions for the anti-aircraft searchlights in Belgrade to be operated in the hope that they might pierce the overcast. It seemed certain that the unlucky trio in the Eagle were circling high above the clouds unwilling to risk a descent. But they weren't. As everyone knows, they had landed at Regensburg and damaged their machine some hours before, and when the much-belated telegram announcing this arrived at Belgrade it was received at first with incredulity, and then with almost hysterical relief.

The mystery remains; there may never be an explanation, but forty-seven people saw those flares drop through the clouds.

Congratulations

Viscount Swinton sent the following telegram to Mr. C. W. A. Scott:—

> "I congratulate you and your fellow-pilot most cordially. It is a great tribute to your airmanship and endurance that you should have repeated your success in the Melbourne race of two years ago. The result is a striking justification also of the intentions of the donor and organisers of the race in demonstrating the excellence of British aircraft design."

Mr. Malcolm Macdonald, the Secretary of State for Dominion Affairs, also sent a telegram, as follows:—

> "Hearty congratulations to you both on your splendid flight. We are delighted to hear that the winner of the Air Race to Australia has repeated his success."

Instructional Flight

FOUR members of the Bombay Flying Club left Heston on Tuesday, September 22, for Le Touquet, on the first stage of their twelve day flight back to India. The party comprises Fl. Lt. Simpson, instructor of the Club, Mr. Stone, chief ground engineer, and Messrs. Nicholson and Engineer, members of the party who have both obtained their "B" licences whilst in England. They are flying two machines, a Moth Major and a B.A. Swallow.

This is the third year in succession that the Club has carried out the flight to England and back, and they hope to repeat the visit next year with five machines.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS

A NEW Lockheed fourteen-seater known as the Super Electra is being built and should be flying early in 1937.

Using an A.N.T. four-engined monoplane, a Soviet military airman, Major A. B. Yumashev, has taken a twelve-ton load to 8,860 ft.

Capt. Miller returned to London last week, the fuel feed difficulty which put his Mew Gull out of the Johannesburg Race at Belgrade having been rectified.

He at once began preparations for an attack on the England-Cape record, and may be well on his way by the time these words appear.

It is estimated that the fuel bill for an Atlantic crossing by *Mercury*, the upper component of the Short-Mayo composite aircraft, will be less than £80.

Dr. V. A. Stookes, a British doctor, of Sandakan, has introduced the first civil aeroplane into British North Borneo. He will use it to visit patients in outlying districts.

The fifteenth Paris Aero show, to be held in the Grand Palais from November 13-29, promises to be well supported. There will be French, British, American, Dutch, Polish, Czech and Russian exhibits

The Douglas Company recently delivered what is probably the most luxurious privately owned machine in the world. A D.C.2, it cost about £20,000, and was destined for Capt. George Whittell, a millionaire.

CONGRATULATION: Mrs. Beryl Markham, on her return after her Atlantic crossing, welcomed by Capt. Percival. On the right is Mr. F. J. Wolfe, chairman of the Anglo-American Oil Company, which, as related on page 365, gave a luncheon in Mrs. Markham's honour.

Forty-six machines (including, it is believed, a Lockheed Electra belonging to New Guinea Airways and a tri-motor Stinson) have been entered for the South Australian Centenary Air Race.

The Government is providing £1,000 in prize money for the race, which will be held in two sections—a handicap event on December 16 and a speed race two days later—both starting at Brisbane and finishing at Adelaide on December 18.

In August, twenty-one years ago, the Westland Aircraft Works began the construction of aeroplanes. Its first products were Short seaplanes. Incidentally, the latest Westland army co-operation monoplane was designed and built in twelve months.

Mr. Julius Hudson, the Chilean representative of the Bristol Company, has been awarded the *Orden del Merito* with the rank of *Comendator* by the Chilean Government. This distinction is only awarded to foreigners with first-class records who, in the opinion of the Government, have rendered specially valuable services to Chile.

FOR SKYWAYS AND HIGHWAYS: The new American "roadable" Autogiro which has folding blades, enabling it to be driven on normal roads and parked in no more space than a medium-sized car, and is fitted with a special Pobjoy engine installed in the fuselage, where it is cooled by air admitted through scoops.

Twenty-five Years Ago

(From "Flight" of October 7, 1911.)

"James G. Weir,* of Glasgow, who was one of the first pupils of the Blériot School at Hendon, has given up aviation and disposed of his Gnome-Blériot to Salmet. It is, therefore, left to Ewen, a puir lone Scot with his headquarters up Lanark way, to bring his country to the front in aviation matters."

[*Now Air Commodore Weir, responsible for the Weir direct-lift Autogiro.]

Correspondence

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases, accompany letters intended for publication in these columns.

THE DIESEL

I NOTE these words in your "leader" in *Flight* of September 17, dealing with the diesel engine: "Hitherto there has seemed no pressing need in the Royal Air Force . . . to abandon the highly developed petrol engine . . ." Surely, it is not already forgotten that a war airman's greatest fear was ending his life in a flaming coffin?

Again, don't you think a few more of our present-type bombers would be more efficient if they had the diesel engine?

Richmond, Surrey. IRA JONES
(Squadron Leader, retired).

MAY I introduce myself by saying that I have flown since 1912, when I frequented Brooklands in the old "Blue Bird" days of happy memory. The late Gordon Bell taught me to fly and was one of my greatest friends. I also knew all the old gang and some of them may remember me.

I flew during the War, and am still at it, and have recently been doing experimental work and test flying. Sorry for all this, but I don't want you to think me entirely ignorant, nor is this letter in any way a leg pull.

I think it is high time our aero engine manufacturers turned their attention to diesel engines, which I am convinced are the aero engines of the future, and I wish more would make them up. Incidentally, I helped instal a diesel engine plant in 1911, and this was really one of the first in this country. We had some fun, but that is another story, and it had a tragic side as later the flywheel burst and completely wrecked a big shop.

You must be aware, as I am, that other countries are streets ahead of us in diesel engine design and that already weight has been considerably reduced, and many practical engines of this type have been produced and are now operating in planes.

It cannot be denied, and is in fact admitted that a diesel engine is more reliable over long periods than any I.C. engine, and there are fewer chances of failure in valves and plugs, to say nothing of chokes in the pipe lines. I won't go into details, but although many engineers refuse to accept this statement, they nearly all admit it to be a fact in the end. In the event of another war I feel confident that the country employing diesel-engined 'planes will come off best, as it is no secret that very powerful radio-electric rays have already been tried out and that a great deal of attention is being paid to this idea by several European countries.

It is all very well to "turn a blind eye" and to put the reports down as "just scarists' rumours," but unless we sit up and take notice we may be caught napping and unprepared, and I say this in all seriousness. Unfortunately I know a good deal more than I have written and I don't feel at all happy about it.

In the last war, at any rate until the latter part, the enemy had the engines, and we had the 'planes. It is, of course, well known that their pilots were often afraid of their engines heating up, and could not and did not stunt as we did, but their machines were faster and undoubtedly their engines were more reliable. In the next war we may have the 'planes and the enemy the engines. BRISTOL FIGHTER.

Oxford.

TOO OLD AT 38?

AN R.A.F. Reserve pilot in Class A suddenly finds himself flung into Class C at 38 years of age. In these unrestful times the age should be restored to 40, as it was from 1922 to 1931. A man at 40 is in his prime, steady and reliable, and if he was good enough for the Powers that Be for nine years surely he is good enough now? There is an outcry for people to join the Reserve; here are some ready-made pilots, cheap to any Government, being kicked out. Not only that, for fifteen years' service no gratuity is paid, only a small retaining fee yearly, and they even do not get the long service medal.

Class C is a force—no pay, no training; only they can be called up at once. Seems absurd! The Air Ministry might look into this matter. SERVICES RENDERED.

Middlesbrough.

The gas holders referred to in letter below from the Leominster Gas Company's assistant engineer.

GROUND SIGNS

I WAS interested to read a letter from Mr. and Mrs. Mollison in your issue of September 10 in regard to the provision of ground signs for aeroplanes.

The name of the town—Leominster—was painted on the gas holders of this comparatively small undertaking early in 1932. The name is now on the holder marked A on the enclosed photograph (taken in 1931), reading from the south, with a sign pointing to a suitable landing ground in case of forced descent, while the name on holder B reads from the north, with directions north and south also indicated on the crown of the holder.

I believe I am correct in stating that the question of painting the names of towns on gas holders was raised in Parliament some few years ago, when it was suggested that the Air Ministry should carry out the work. The Air Ministry, however, refused to do anything in the matter, pointing out that it would be very unwise in case of war.

I have no doubt that many gas undertakings in this country would provide ground signs at their own expense (which, after all, is very small) if they were asked to do so.

Leominster, Herefordshire. CHAS. J. PARSONS,
Assistant Engineer,
Leominster Gas and Coke Co., Ltd.

CONCRETE RUNWAYS

THE fact that Messrs. Richman and Merrill were forced to begin their recent east to west Atlantic flight from the sea shore is a serious reflection on the inadequate size of our aerodromes.

There is little evidence that normal aeroplanes will in the near future require less space in which to land and take-off. With the demand for more and more speed in the air it is not surprising that aerodynamic improvements, which might be applied to reduce landing and take-off speeds without loss of air speed, are applied rather to increasing the air speed. Even if the difficulty of providing larger aerodromes compels aircraft manufacturers to tackle the question of combining low landing speeds with high cruising speeds, there is no question whatever that finality in the size of aeroplanes has not been reached. Much larger and much heavier aeroplanes must be looked for, so the size of aerodromes and the strength of the surface will need to be not less than at present.

In many cases the difficulty and expense of enlarging the landing area would be so great that the alternative of improving the surface so as to enable the aeroplane to become airborne after a shorter run merits consideration.

The ability of an aerodrome to attract traffic depends on the extent to which aircraft can use it in all weathers, by day and by night. A wide use of concrete surfacing applied to runways and taxi strips, as yet little known in Great Britain, but well proven abroad, results in the all-weather aerodrome.

A few years ago the Junkers *Bremen*, with its full load for the flight to America, took off from the concrete runway at Dessau, Germany, with a run of only 1,800 feet. The same machine, with decreased load, required a starting run of 4,750 feet on its next take-off from the rolled cinder runway at Baldonell, Ireland.

Much has been written about runways; on the Continent to some extent, and in America to a greater extent, the conclusions arrived at have been put into practice. At the time of writing, out of 333 classified aerodromes in the U.S.A., 244 have runways; and concrete runways, which, with their low resistance to traction, enable aeroplanes to acquire flying speed with a shorter run than from any other surface, have come to be regarded as a necessity at up-to-date airports.

It has been argued that a concrete surface, though ideal for taking off, is too hard for comfortable landings. A moment's reflection will show that no pavement which is firm enough to carry aeroplane loads can be soft and pliable enough to cushion the blow of a landing machine. A so-called "resilient" surface could hardly permit the wheels to sink into it more than a fraction of an inch, and this would be insignificant compared with the "take-up" of 12in. or more provided by the tyres and shock absorbers of the machine. Leading American pilots, who, it must be remembered, have had a wide experience of concrete runways (whereas our pilots, as a class, have not), endorse the concrete runway as superior for landing on as well as for taking-off from.

Another bogy that has been killed is the theory that a concrete surface would be injured by tail skids. Apart from the fact that the development of wheel brakes, now universal on all but the smallest aeroplanes, has removed the need for the tail skid to be used as a brake and has led to its replacement by a tail wheel, actual tests have shown that the concrete was unaffected and that the only result was more rapid wear of the tail skid.

D. C. BURN, M.A., M.Inst.C.E.

Chesham Bois, Bucks.

IN BRIEF

A young Danish reader is anxious to correspond with English enthusiasts on aviation matters. He is Mr. Henry Larsen, c/o H. Jessen, Greve Strand, Sjalland, Denmark.

MAXWELL HUTCHEON FINDLAY

CAPT. MAX FINDLAY, D.S.C., D.F.C., R.A.F.O. (whose death in a Johannesburg Race accident is recorded elsewhere), will be sadly missed at Brooklands, where he was an instructor and sales manager. Of Scottish birth, he was thirty-eight years of age and had twenty years of flying experience behind him. His war service began in the Black Watch, from which he transferred to the R.A.F. After the War he served in India with the R.A.F., and was in the Afghanistan and Waziristan campaigns of 1919-21.

He did not continue his flying immediately after the War but, instead, turned his interest to farming in Scotland, gaining first-class diplomas in agriculture at Aberdeen University. The call of the air proved too strong, however, and in 1930 he joined National Flying Services, Ltd., to which he was chief instructor until 1933. From there he went to Brooklands.

Capt. Duncan Davis, managing director of Brooklands Aviation, Ltd., tells us that, although Findlay was a very senior and experienced pilot when he joined their staff, he worked for twelve months quite happily under the then Chief Instructor, Lowdell.

"Max" says Capt. Davis, "was without exception the hardest working executive on our staff, and on very many occasions he has done anything up to eight or nine hours' flying in a single day. He was equally efficient on instruction, taxi work and the selling of aircraft, and one of my only troubles was to get him to take a day off duty.

"He has always been passionately fond of animals, and early last year started to breed and race greyhounds. This hobby was, in my opinion, his salvation, as it would take his mind off aviation for at least one day in seven. He had a keen sense of humour and a most fertile brain, and as a personality he was one of the most likeable people I have ever met. His loss to Brooklands, and to British aviation, is irreparable."

Mr. Griffith Brewer, the veteran private owner, pays the following tribute in a letter to *The Times*:—

"It is difficult for instructors but half the age of their pupils to temper instruction with kindness while being firm. Max was modest but never weak, and when he corrected us we remembered it, but without resentment. Some time ago, after I had been looping at Hanworth, he greeted me as I taxied up to the hangar. In commenting on the flight I confessed to him that I found when I came to undo my belt I had neglected to fasten it. His remark was mild but effective when he said that in all his flying he had never flown with his belt unfastened. This care in his flying accounted for his fearlessness, for by eliminating all risks he left no risks to run. Max was the finest pilot I have ever known. When I wanted to store my machine for the winter in a hangar in a small field surrounded by high trees at my home it was Max Findlay who undertook the landing. Several pilots assembled and saw him drop the aeroplane and land it within half the small space available. The following spring he flew it out again."

A. H. Morgan

Mr. A. H. Morgan, the radio operator who was killed with Capt. Findlay, had left the sea in order to take up aircraft wireless operating. For some time he had been with Air Dispatch, Ltd., working on their early-morning newspaper and other services.

* * *

A memorial Service for the two men will be held at St. Columba's (Church of Scotland), Pont Street, London, S.W.1, at noon next Monday.

Miss Batten's Latest Venture

FLYING a Percival Gull, Miss Jean Batten left Lympne at 4.10 a.m. last Monday in an attempt to cut down her previous time between England and Australia by, in her own words, "at least a week." In 1934, flying a Moth, she made the journey in 14 days 23 hours.

She may continue the flight through to her home in New Zealand.

The machine is fitted with extra tanks in the cabin. Miss Batten did not fill them to capacity before leaving, and refuelled at Marseilles. She arrived at Brindisi on Monday afternoon, and left for Cyprus on Tuesday morning.

She reached there speedily, stayed for a short time, and left at 11.45 a.m. (G.M.T.) for Baghdad.

It was announced last week that, in recognition of her South Atlantic flight, Miss Batten had been awarded the 1935-36 Johnston Memorial Prize by the G.A.P.A.N. The Prize, which is awarded annually for the best feat of navigation, was founded in memory of the late Sqn. Ldr. E. L. Johnston, navigator of the R 101, who died in the disaster to the airship. The prize is a silver plaque showing Mercator's projection of the world, surmounted by an engraving of Sqn. Ldr. Johnston.

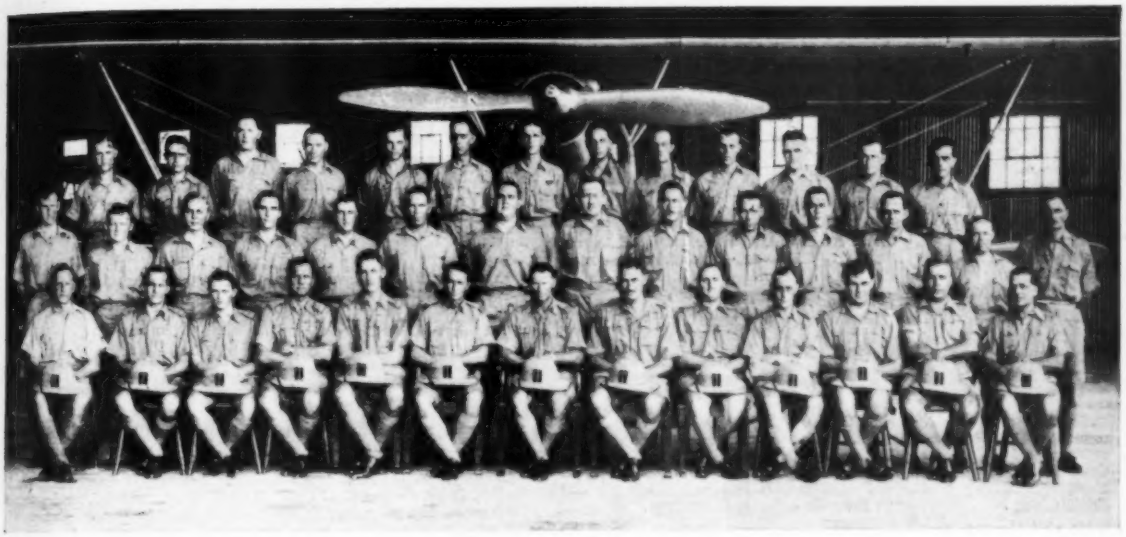
The Dumfries Project

IT has been officially announced in Dumfries that the Arrol-Johnston works at Heathhall have been acquired by a new company named High Power Aeronautical Engines, Ltd. Production is to be started as soon as possible of a well-known world-famous aero engine, and also of marine engines for high-speed coastal motor boats. This statement was made to a correspondent by Mr. J. R. Greenwood Bramhall, in whose name the factory was purchased last spring. He said: "We will be ready to start production as soon as the machinery is installed. We have no Government contracts and we cannot expect any until we are in a position to give delivery, but as soon as we are I have no doubt we will get Air Ministry and Admiralty contracts."

He though the factory would ultimately employ 2,000 persons. Mr. James Pratt, formerly with Armstrong-Saurer and Armstrong Whitworth, Ltd., has been appointed works manager.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS — AIR MINISTRY ANNOUNCEMENTS



THE STRAITS SETTLEMENTS VOLUNTEER AIR FORCE: This group shows the officers and airmen at Singapore. Flights are to be formed throughout the Settlements until the Force has a strength of two squadrons. The names of the front row, from left to right, are:—Flt. Sgt. Arnold, P/O. Allen, P/O. Roberts, P/O. Watkins, P/O. Hart, Sqn. Ldr. Vines, Sqn. Ldr. Flinn, Flt Lt. Grace, P/O. Whiteley, P/O. Carter, P/O. Jones, P/O. Cherry, Sgt. Hiom.

THE UNDER-SECRETARY'S TOUR

Sir Philip Sassoon, who is making a tour of inspection of R.A.F. stations overseas, left Cairo for Kenya on October 2.

ABBOTSINCH STATION

The R.A.F. Station, Abbotsinch, and the undermentioned units will be transferred, within the Bomber Command, from No. 2 (Bomber) Group to No. 1 (Bomber) Group, with effect from October 6:—

Station Headquarters.
No. 21 (Bomber) Squadron.
No. 34 (Bomber) Squadron.

FORMATION OF STATION HEADQUARTERS

A station headquarters will form at Usworth on December 14, on which date the station will be transferred to Coastal Command.

A station headquarters will form at Bicester on December 21 in No. 1 (Bomber) Group.

A station headquarters will form at Odiham, near Basingstoke, Hants, on December 31, on which date the station will be placed under the command of the A.O.C.-in-C., Fighter Command, in No. 22 (Army Co-operation) Group.

The aerodromes may be used with effect from December 31 for aircraft of personnel visiting the station on duty in connection with the opening. Only aircraft fitted with tail wheels will be permitted to land, and no facilities of any kind will be available. The aerodromes will not be available for general use until February 9, 1937.

FLYING NEAR AERODROMES

Aircraft flying within a radius of three miles of an aerodrome and at an altitude less than 2,000 ft. above ground level are to do so at a speed not exceeding 120 m.p.h. In special circumstances and for a particular purpose, station commanders may authorise relaxation of the regulation.

FOREIGN OFFICERS ATTACHED

F/O. Anilinne, of the Estonian Air Force, has been attached to the Central Flying School for a three weeks' course on Anson aircraft from September 5. Lt. Marasakara, of the Siamese Air Force, has been attached to the Home Aircraft Depot, Henlow, from September 10, for the second year of the Engineering Course.

R.A.F. BENEVOLENT FUND

The usual meeting of the Grants Committee was held at Iddesleigh house on Monday, September 21. Mr. W. S. Field was in the chair, and the other members present were Air Comdre. B. C. H. Drew, O.B.E., and Group Capt. C. H. K. Edmonds, D.S.O., O.B.E. The Committee made grants to the amount of £251 7s.

FLYING ACCIDENT

With reference to reports which have appeared in the Press concerning the disappearance on the morning of September 7 of an aircraft of No. 3 Flying Training School, Grantham, the Air Ministry announces with regret that it is now believed that Flt. Lt. Peter Heylin Heygate, the pilot and sole occupant of the aircraft, lost his life at sea on that date. A part of the aircraft has been found.

ROYAL AIR FORCE GAZETTE

London Gazette, September 29, 1936

General Duties Branch

Flt. Lt. J. G. Glen is granted a permanent commission in that rank (June 1).

The following are granted temporary commissions as Flying Officers on attachment to the Royal Air Force (September 13):—

Lieutenants, R.N.—P. D. Gick, G. Starkey, R. L. Strange.

Sub-Lieutenants, R.N.—A. H. Abrams, D. H. Burke, R. N. Everett, R. H. Furlong, W. R. Harley, C. A. Knocker, R. W. Slater, J. H. Stenning, L. E. D. Walthall, R. L. Williamson, B. Willoughby.

The following are granted temporary commissions as Flying Officers on being seconded for duty with the Royal Air Force with effect from the dates stated:—Lt. J. MacDougall (The Duke of Cornwall's Light Infantry), Lt. B. C. Mallinson (Royal Artillery), Lt. A. R. W. Shipley (The Duke of Cornwall's Light Infantry), Lt. W. G. Tailyour (The Cameron Highlanders), Lt. I. C. B. Worthington-Wilmer (Royal Tank Corps) (September 14); Lt. J. L. Yeatman (The Royal Fusiliers) (September 15).

J. L. Robinson is granted a short service commission as Acting Pilot Officer on probation with effect from and with seniority of September 7, 1936; P/O. R. J. Courtney Nedwill is promoted to the rank of Flying Officer (September 16); Flt. Lt. C. E. St. J. Beamish is restored to full pay from half pay (September 18).

The following cease to be attached to the Royal Air Force on return to Naval duty on the dates stated:—

Cdr. C. B. Tidd, R.N., Squadron Leader, R.A.F. (September 9); Lt. P. W. Humphreys, R.N., Flight Lieutenant, R.A.F.; Lt. O. S. Stevinson, R.N., Flight Lieutenant, R.A.F. (August 30); Lt. J. A. D. Wroughton, R.N., Flight Lieutenant, R.A.F. (September 1); Lt. G. B. S. Slater, R.N., Flight Lieutenant, R.A.F. (September 14).

The short service commission of the following Acting Pilot Officers on probation are terminated on cessation of duty on the dates stated:—

J. M. W. Savory, K. M. W. Savory (September 18).

M. A. L. S. Giles (September 19); D. F. O'Mahony Leahy (September 22).

Stores Branch

W/O. L. Mitchell is granted a permanent commission as Flying Officer on probation with effect from and with seniority of August 28; Flying Officer on probation A. C. Dibben is confirmed in rank (September 5).

Medical Branch

The following Flying Officers are promoted to the rank of Flight Lieutenant:—

L. N. Trethowan, M.R.C.S., L.R.C.P. (seniority December 2, 1935); J. B. Wallace, M.B., Ch.B. (seniority March 2) (September 2).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers
General Duties Branch

Flt. Lt. A. H. Goldie (R.A.F., Retired) is granted a commission as Flight Lieutenant in Class C (July 13); F/O. J. W. C. Glen is granted the honorary rank of Flight Lieutenant (September 2); F/O. T. R. Wheatley is transferred from Class C to Class A (July 14).

The following Flying Officers relinquish their commissions on completion of service on the dates stated:—C. Watson (October 15, 1935); O. G. Williams (July 18); M. Goodall (September 12).

The following Flying Officers relinquish their commissions on completion of service and are permitted to retain their rank:—J. C. Houston, M.C. (August 10); S. Jones, D.F.C. (August 14).

AUXILIARY AIR FORCE

General Duties Branch

No. 600 (CITY OF LONDON) (FIGHTER) SQUADRON.—F/O. P. R. Devitt is promoted to the rank of Flight Lieutenant (July 13).

No. 608 (NORTH RIDING) (BOMBER) SQUADRON.—P/O. R. A. Clay is promoted to the rank of Flying Officer (August 10).

No. 611 (WEST LANCASHIRE) (BOMBER) SQUADRON.—A. W. Richards is granted a commission as Pilot Officer (August 10).

Stores Branch

Sqn. Ldr. V. J. B. Jacobs (R.A.F., Retired) is granted a commission as Flight Lieutenant (Hon. Squadron Leader) (May 1).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodores.—C. W. H. Pulford, O.B.E., A.F.C., to Superintendent of the Reserve, Hendon; on appointment as Superintendent of Reserve and Inspector of Civil Flying Training Schools vice Group Capt. R. Leckie, D.S.O., D.S.C., D.F.C., A.D.C., 21.9.36. C. R. M. Reid, D.S.O., M.C., to R.A.F. Station, Halton; to command vice Group Capt. G. W. Murlis-Green, D.S.O., M.C., 16.9.36.

Group Captains.—R. H. Kershaw, to Air Armament School, Eastchurch; to command vice Air Comdre. C. W. H. Pulford, O.B.E., A.F.C., 21.9.36. G. W. Murlis-Green, D.S.O., M.C., to R.A.F. Station, Driffield; to command, 16.9.36.

Squadron Leaders—C. A. Hoy, M.C., to Headquarters, No. 1 (B) Group, Abingdon; for Air Staff duties vice Sqn. Ldr. W. Wynter-Morgan, M.C., 17.9.36. P. J. A. Hume-Wright, to No. 98 (B) Squadron, Hucknall; to command, 21.9.36. L. Young, to Headquarters, Training Command, Market Drayton; for Equipment (Engineer) Staff duties vice Sqn. Ldr. T. G. Bird, 23.9.36. D. M. Fleming, to No. 4 Flying Training School, Abu Sueir, Egypt; for flying duties, 1.9.36. R. O. Jones, to No. 11 (B) Squadron, Risalpur, India; to command vice Sqn. Ldr. A. R. Wardle, A.F.C., 7.9.36.

Flight Lieutenants.—H. H. Martin, to No. 220 (G.R.) Squadron, Bircham Newton, 7.9.36. G. Francis, to Headquarters, R.A.F., Far East, Singapore, 10.9.36. A. D. Messenger, to R.A.F. Station, Singapore, 10.9.36. R. L. Wallace, to R.A.F. Station, Kai Tak, Hong Kong, 10.9.36. C. E. St. J. Beamish, to No. 2 Flying Training School, Digby, 18.9.36. G. R. M. Clifford, to No. 821 (F.S.R.) Squadron, 21.9.36 R. C. Gaskell, to R.A.F. Station, Gosport, 21.9.36. E. F. Porter, to No. 206 (G.R.) Squadron, Bircham Newton, 9.9.36. B. C. Yarde, to R.A.F. College, Cranwell, 23.9.36. L. W. Burgess and G. E. Watt, to Home Aircraft Depot, Henlow, with effect from 20.9.36.

Flying Officers.—E. J. Boyle, to No. 2 Flying Training School, Digby, 17.9.36. G. P. Seymour Price, to No. 802 (F.F.) Squadron, 2.9.36. C. G. R. Lewis, to No. 111 (F) Squadron, Northolt, 24.8.36. M. F. B. Read, to No. 83 (B) Squadron, Turnhouse, 23.9.36. W. M. Keddie, S. J. Marchbank, K. D. Salmond, R. G. Stone, R. M. Russell, H. Stanton, R. A. C. Carter, T. G. L. Gale, N. Hope, E. B. King, J. C. Pope, and N. W. Wakelin, to Home Aircraft Depot, Henlow, with effect from 20.9.36.

Pilot Officers.—C. M. Lester, to R.A.F. Station, Donibristle, 7.9.36. T. M. Evans, J. V. Hoggarth, and T. M. Lockyer, to No. 220 (G.R.) Squadron, Bircham Newton, 7.9.36. R. D. Blair and R. Cave-Browne-Cave, to No. 205 (F.B.) Squadron, Singapore, 10.9.36. G. L. A. Cooper, to No. 100 (T.B.) Squadron, Singapore, 10.9.36. N. B. R. Bromley, R. L. Smith, J. G. Spencer, to No. 801 (F.F.) Squadron, 22.9.36.

Acting Pilot Officers.—The undermentioned are posted to No. 10 Flying Training School, Tern Hill, with effect from September 5, 1936:—H. T. J. Anderson, K. F. Arnold, D. P. Bamber, A. W. A. Bayne, R. C. Dundas, K. T. A Harvey, P. H. Jackson, S. A. Levenson, D. W. Lindsay, A. H. McLaren, M. J. S. Newman, D. C. Pritchard, R. P. Wallace-Tarry, J. R. M. Boothby, J. T. I. Challes, A. G. Griffin, N. J. Hetherington, L. C. Mitchell, D. A. Robertson, E. J. Sheeran, R. W. Stanway, A. E. Timmerman, R. G. Wheldon, D. White, O. L. Williams, R. R. Helsby, and M. T. St. J. Pattle. J. N. Mahler, to No. 70 (B.T.) Squadron, Hinaidi, Iraq, 21.8.36. G. T. Openshaw, to No. 84 (B) Squadron, Shaibah, Iraq, 21.8.36. R. Clarke, C. A. Richardson, J. T. Bouwens, D. Fortnum, P. A. Matthews, M. W. Donaldson, Y. P. Wilson, L. R. Field, P. A. Gilchrist, H. D. Green, to No. 70 (B.T.) Squadron, Hinaidi, Iraq, 10.9.36. D. R. Chance, E. A. Liversidge, G. O. Mills, R. G. Taylor, J. W. C. Powell, H. A. Hornblow, L. S. Lawrence, N. M. Boffee, B. G. D. Nathan, P. F. Rutter, to No. 216 (B.T.) Squadron, Heliopolis, Egypt, 10.9.36. K. J. McDonald, to R.A.F. Depot, Uxbridge, on appointment to a short service commission, on probation, with effect from 8.9.36.

Stores Branch

Flight Lieutenant.—T. I. Iliff, to No. 30 (B) Squadron, Mosul, Iraq, 13.9.36.

Flying Officer.—L. Mitchell, to School of Storekeeping, Cranwell; on appointment to a permanent commission, on probation, with effect from 28.8.36. D. F. Syder, to No. 4 Flying Training School, Abu Sueir, Egypt, 1.9.36.

Accountant Branch

Squadron Leader.—E. C. M. Knott, to Superintendent of Reserve, Hendon, 22.8.36; for Accountant duties, 22.8.36.

Flying Officer.—C. G. Stowell, to Reception Depot, West Drayton, 16.9.36.

Pilot Officer.—P. H. Roscoe, to Home Aircraft Depot, Henlow, 21.9.36.

Medical Branch

Squadron Leaders.—P. D. Barling, to Aircraft Depot, Hinaidi, Iraq; to remain attached to Iraq Levies as Senior Medical Officer and Officer Commanding Levy Hospital, 17.8.36. J. Hutchieson, to Aircraft Depot, Hinaidi, Iraq; for duty as Senior Medical Officer, 17.8.36.

Flight Lieutenants.—A. W. Callaghan and A. W. Smith, to Aircraft Depot, Hinaidi, Iraq, 17.8.36. W. G. S. Roberts, to No. 30 (B) Squadron, Mosul, Iraq, 17.8.36. C. A. Lewis, to No. 84 (B) Squadron, Shaibah, Iraq, 17.8.36.

Flying Officers.—J. R. R. Jenkins, to R.A.F. Station, Scampton, 17.9.36. J. H. Neal, to R.A.F. Station, Mount Batten, 17.9.36.

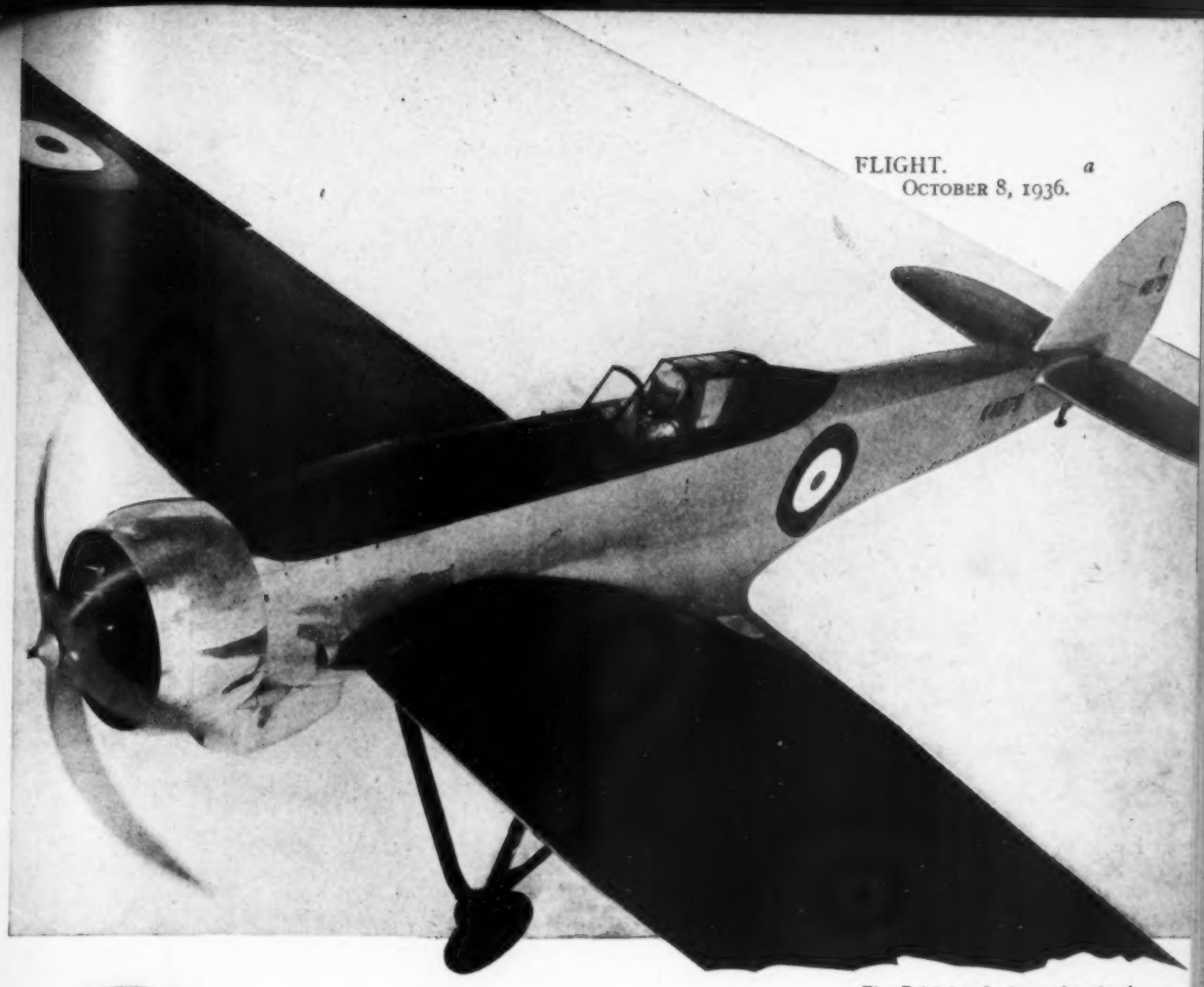
The undermentioned are posted to the Medical Training Depot, Halton, on appointment to short service commissions with effect from 7.9.36:—C. C. Barker, J. R. Cellars, N. P. R. Clyde, J. Conroy, J. D. H. Cran, D. J. Dawson, P. A Lee, G. B. MacGibbon, W. J. Mitchell, D. F. S. Shaw, A. R. Sibbald, and C. E. G. Wickham (with effect from 10.9.36).

Dental Branch

Flying Officers.—C. H. Beamish, E. Martin, and A. C. Wilkie, to Medical Training Depot, Halton; on appointment to non-permanent commissions with effect from 7.9.36.

Chaplains Branch

Revd. O R. I. Jones, to R.A F. Depot, Uxbridge; on appointment to a short service commission with effect from 11.9.36.



The Bristol 138 above the clouds.

SOME 50,000 ft. IMPRESSIONS

Sqn. Ldr. Swain tells the Story of His Successful Attempt on the Altitude Record

LAST Thursday, alone among aeronautical journals, "Flight" published the news of Sqn. Ldr. F.R.D. Swain's successful attempt on the altitude record, together with photographs, drawings and a detailed description of the special Pegasus-engined Bristol 138 monoplane and its equipment. This week we give the pilot's impressions of the flight.

TO recapitulate briefly, the attempt on the record was made from Farnborough on Monday morning of last week, and Sqn. Ldr. Swain reached a height of 15,230 metres (49,967 ft.), thus exceeding by 1,293 ft. the existing record of 48,674 ft. held by the French pilot Detré, flying a Potez. The figures are subject to acceptance by the F.A.I.

The machine used was a specially constructed Bristol single-seater low-wing cantilever monoplane, the 138, equipped with a special Bristol Pegasus nine-cylinder air-cooled radial known as the P.E. VI S. A two-stage supercharger was fitted.

Sqn. Ldr Swain wore a specially designed suit embodying an oxygen helmet, and the cockpit of the machine had a sliding hood. These details were clearly shown in the drawing which appeared on page 339 of last week's issue of *Flight*.

On the evening of the day following the successful attempt, Sqn. Ldr. Swain, accompanied by Wing Cdr. J. W. Woodhouse, D.S.O., M.C., chief of the experimental flying department of the Royal Aircraft Establishment, South Farnborough, gave his impressions of the flight.

Sqn. Ldr. Swain said that after taking-off from Farnborough at 7.30 a.m. he climbed in wide circles to 40,000 ft., when he turned south-east and flew on until he had climbed to about 45,000 ft. He was then about ten miles to the north of Brighton. There was a moderately strong wind blowing from the north-west, so he headed into the wind and flew straight.

Although it may be calm on the surface winds of up to 200 m.p.h. velocity may be encountered in the upper air, and the altitude pilot may be blown out to sea, so that his chances of getting back safely depend on the amount of petrol he has left. Sqn. Ldr. Swain therefore decided to go on climbing until he had petrol for three-quarters of an hour's flying left in his tank.

When he reached 46,000 ft. he found on looking down

that the light was almost dazzling, but as a result of experience in previous flights he had had all the parts of the aeroplane which could catch his eye painted black. He said that the sky above was a very deep blue, in fact, almost black, but he could not see any stars. This effect was due to the fact that there were no molecules of dust or moisture in the atmosphere. There were no clouds above about 35,000 ft.

Below him he could see from Margate in the east to Land's End in the west, and northwards almost to the Wash! London looked like a little toy town, and the Channel Isles appeared to be small stones in a shallow river. He admitted that then he felt small and lonely, and England appeared to be a very minute country.

He then concentrated on his instruments so as to get the correct speed for attaining the maximum height, as the controls at extreme heights were not sensitive, and height might be lost and not gained by neglect of the instruments. So he glued his eyes on the air-speed indicator, the oxygen pressure gauge, the suit pressure gauge, the compass, the watch, the altimeter, and the fuel gauge. At this time the pressure suit was causing him a little discomfort. He had some difficulty in moving his limbs and felt slight cramp in his right arm, but had no difficulty in breathing. He remarked that without the special suit he could not have remained conscious at above 40,000 ft. or so.

A *Thousand Feet "For Luck"*

Before starting he had been warned that his altimeter was over-registering, showing about 1,000 ft. too much. So at 50,000 he was afraid that he had not beaten the record and continued to climb until the altimeter showed 51,000. Then he found that he could climb no higher and so, he said, "I decided to call it a day."

He throttled down and began to glide. He knew he was almost over the Bristol Channel and could see the Welsh mountains quite clearly. When he had glided down about 5,000 ft. the window of his helmet hazed over and the windows of the cabin frosted. Consequently he could not see at all, and he admitted that this worried him a lot. He could not read his compass, but he could just distinguish the glare of the sun to the east, and so, knowing he was over the West of England, flew towards the light. He continued to lose height, flying in a very erratic manner because he was practically blind. Then he started to feel that he was being suffocated. Feeling gradually weaker, he came to the conclusion that he was running short of oxygen, and he tried to press the relief lever to open the cockpit cover, but could not make it function. Actually, it was found afterwards that this lever was working quite properly, but at the time Sqn. Ldr. Swain was so exhausted that he was unable to operate it. He then tried to pull the rip cord of his suit so as to get his head clear of the helmet, but he had fighting harness and parachute harness outside the suit and so could not find the rip cord. But the equipment included a sheath knife for such an emergency as this, and Swain decided that the only thing to do was to cut the window of the helmet with this knife. He had great difficulty in doing so, because he was feeling very weak, but at last he got the knife through the Celastoid, tore off the rest of the window, and, when he got the fresh air in, felt much better. He then saw that he was 14,000 ft. up and somewhere over Yeovil, so he steered N.E., still losing height, until he reached Salisbury Plain. His petrol gauge then showed that he had two gallons left, so he landed at Netheravon—"And that was that."

Although Swain had the impression that the oxygen supply was failing, it did not really do so. The feeling which he experienced was due to his exhaustion. To fly in this special suit at 50,000 ft. was the equivalent of flying with an ordinary oxygen mask and electrically heated clothing at 35,000 ft. Any pilot who flew with the ordinary equipment at 35,000 ft. for two hours would naturally be exhausted at the end of it. Swain had been up much longer than had been anticipated (his flight took altogether 3 hours and 20 minutes) and it had taken him an hour to climb the last thousand feet.

He explained the frosting of the windows by saying that as he came down from the dry atmosphere above 35,000 ft. into the area of moisture his engine was throttled down, and consequently he got less warmth in his cockpit from the arrangement by which hot air was introduced from the oil coolers.

He said that he was very disappointed with the flight because he had hoped to get higher, but it should be remembered that this was the first attempt on this type of machine.

At this point Wing Cdr Woodhouse interposed to say that he felt certain that as this machine was adjusted and flown it could not have climbed any higher than it did. He added that the adjustments might be altered. He also said that he saw Sqn. Ldr. Swain shortly after he landed and could testify that, although he was rather tired, he seemed to be normal in every way.

After landing at Netheravon, Sqn. Ldr. Swain was flown back to Farnborough in a Heyford. He then drove down to Portsmouth to see a friend—F/O. Clouston—start off at 6.30 next morning in the Johannesburg Race.

* * *

Two additional points are worth noting. One is that the minimum atmospheric pressure measured during the flight was 92.0 millimetres of mercury, and the lowest temperature was −49.8 deg. centigrade; both those measurements were at the highest point attained. The other concerns the special instructions printed on the port side of the fuselage for extricating the pilot should he land in a semi-conscious condition. Happily they remained merely precautionary:

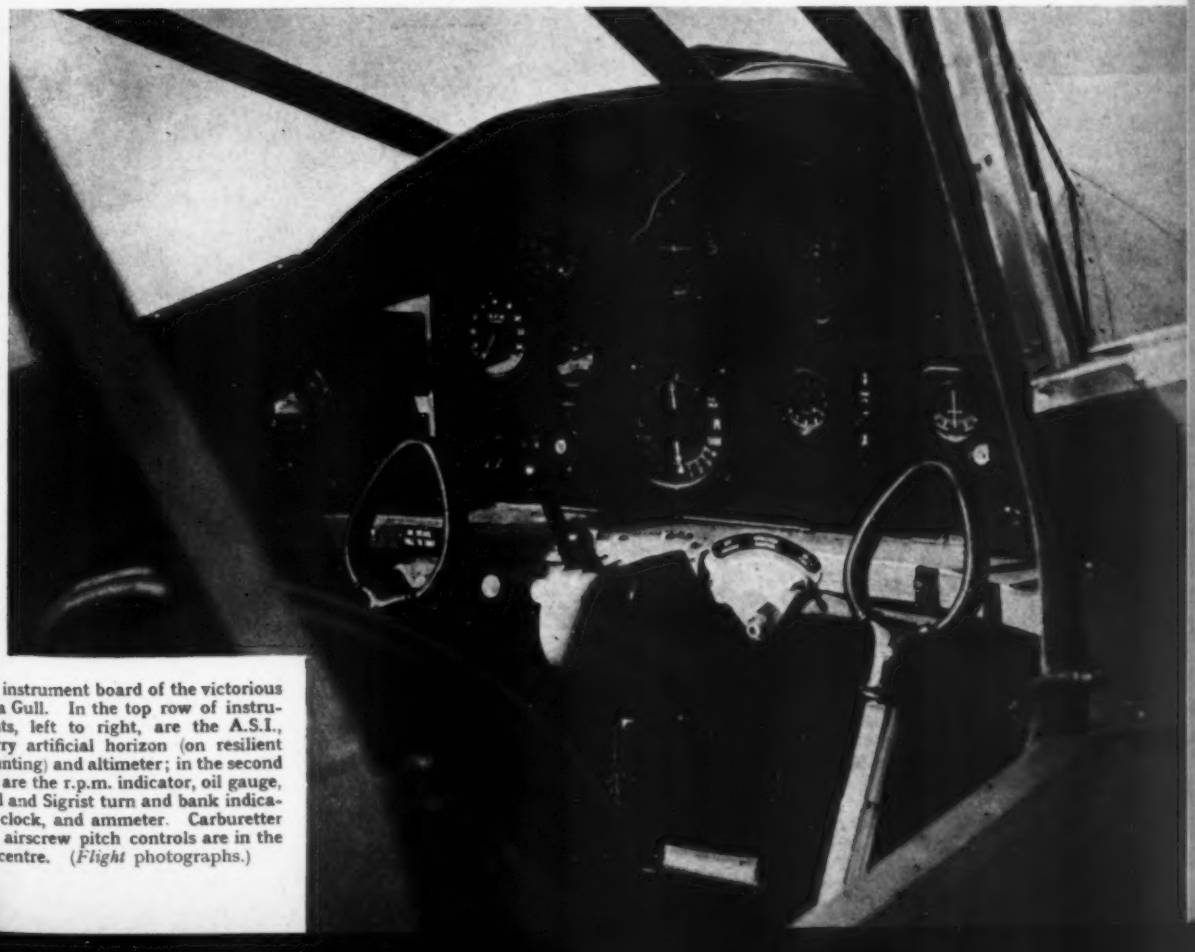
"Open cockpit. Slash suit with knife in cockpit to give pilot air Cut away straps and remove pilot from aircraft. Remove suit as in instructions carried by pilot, or cut away if necessary. Keep pilot warm when suit has been removed. Get a doctor."

VEGA VICTORIOUS

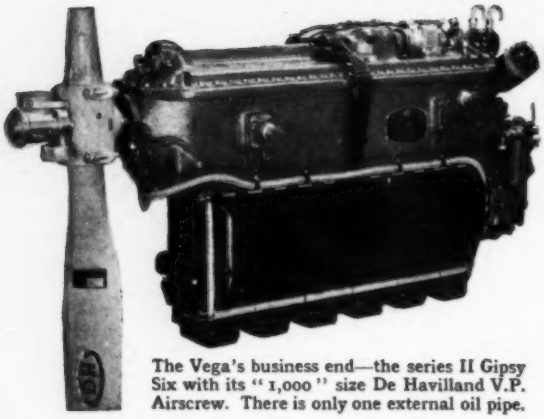
The Specification of Scott's Percival Vega Gull and Its Gipsy Engine

THE Percival Vega Gull is a development of the standard Gull, built on generally similar lines, but with a wider fuselage designed to accommodate four passengers, though in the case of the race-winning machine the two vacant seats were sacrificed to extra fuel tank space. A low-wing monoplane, it is of the normal Percival wooden construction, with trousered and spatted undercarriage and fitted with trailing-edge flaps. The cruising speed of the standard model with the 200 h.p. D.H.Gipsy Six engine is 150 m.p.h., but the Series II Gipsy Six and D.H variable-pitch airscrew, as fitted to Scott's machine, increase this figure very considerably. The winner's special tankage arrangements consisted of two tanks in the outer wing panels containing 20 gallons each, two more in the centre section holding 14 gallons each, and a fifth in the cabin of 28 gallons capacity; this made a total of 96 gallons, which was calculated to give a theoretical range of 1,500 miles.

The Series II Gipsy Six engine with which the machine is fitted is a version of the successful and well-tried Gipsy Six, but adapted for use with V.P. airscrews and utilising high-octane leaded fuels. The outstanding feature of its



The instrument board of the victorious Vega Gull. In the top row of instruments, left to right, are the A.S.I., Sperry artificial horizon (on resilient mounting) and altimeter; in the second row are the r.p.m. indicator, oil gauge, Reid and Sigrist turn and bank indicator, clock, and ammeter. Carburetter and airscrew pitch controls are in the centre. (*Flight* photographs.)

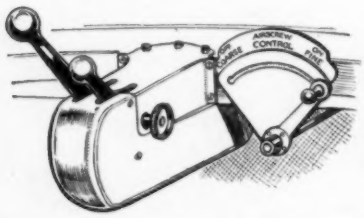


The Vega's business end—the series II Gipsy Six with its "1,000" size De Havilland V.P. Airscrew. There is only one external oil pipe.

performance is a higher consistent output over the cruising range and a notable increase in take-off power, made possible by the use of the V.P. airscrew.

The six cylinders have a total capacity of 9.186 litres and a compression ratio of 6:1. The crankshaft runs in eight main bearings, with a ball thrust bearing at the front end. The valves—the exhaust valves are of the Stellited type—operate on steel seats having a high coefficient of expansion, made necessary by the employment of high octane fuel.

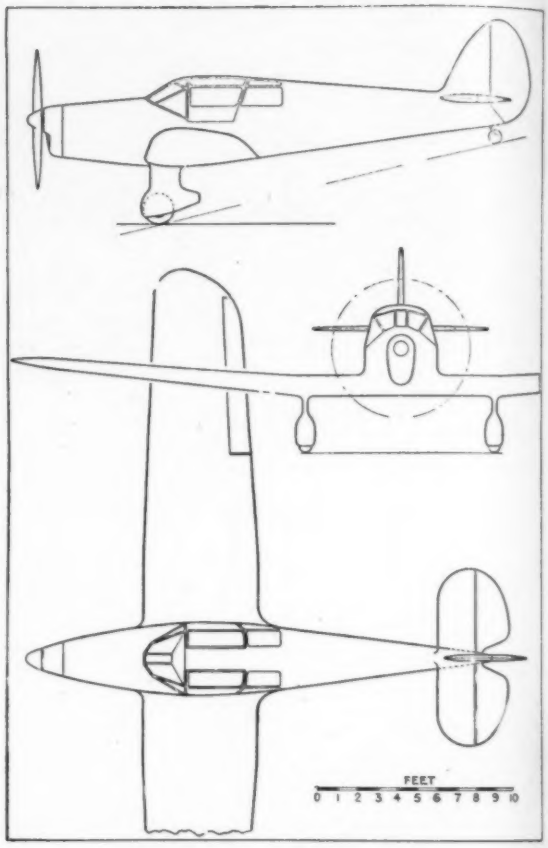
Two downdraught carburetters each supply three cylinders and draw warm air from around the cylinders at cruising speed, a flame trap being interposed. When the throttle is fully open a change-over flap is moved and air is taken from outside the cowling. This obviates any risk of freezing at cruising speeds, yet there is no loss of performance at full throttle. A gear-type oil pump supplies oil at a pressure of 40 to 45 lb./sq. in., the main stream going *via* the crankshaft and subsidiary streams lubricating the valve gear and auxiliary drives. Two scavenge pumps draw oil from each end of the crank case.



How the airscrew pitch is changed—the simple control (to the right of the throttle and altitude control) in the Vega Gull.

With a V.P. airscrew the engine develops a rated output of 205 b.h.p. at 2,400 r.p.m. Fuel consumption is 11½ gallons per hour, cruising at 2,100 r.p.m., or 16 gallons per hour at full throttle (2,400 r.p.m.). Oil consumption is 3 to 5 pints per hour at 2,100 r.p.m.

The proprietary equipment of the machine included the following: Smith's engine instruments; two Husun compasses, types P3 and P4; Reid and Sigrist turn and bank indicator; Sperry artificial horizon. A Rotax battery supplied current for the Vickers landing light and Demec navigation lights. The wheels and tyres were Dunlop, and Bendix brakes were fitted.



General arrangement of the Vega Gull.

The Percival undercarriage embodied legs by Automotive Products. In the construction of the airframe the spruce was by Bamberger, and plywood was by Flexo and Aeronautical and Panel Plywood. Reynold's special tubing was also employed. The finish was in Titanine dope. Upholstery was by Rumbold, the cabin top was Rhodoid, and the windscreen was of Splintex.

Proprietary engine components and accessories included a crankshaft made of steel supplied by the English Steel Corporation, a camshaft by the Weyburn Engineering Co., and white metal bearings by Hoyt and the Eyre Smelting Co.; Wellworthy piston rings were fitted, and the valve springs were Salters'. B.T.H. magnetos, driven through Simms flexible couplings, supplied current to K.L.G. plugs *via* cables made by British Insulated Cables, Ltd., and the H.T. terminals were by Chater-Lea. An Amal petrol pump supplied fuel to the Claudel-Hobson carburetters, to which Amal flame traps were fitted. Other accessories included gaskets by Hall and Hall, and Cooper's Mechanical Jointing; Robertson's "Jubilee" hose clips; oil-resisting rubber by the Northern Rubber Co., Dermatine Co., and Lyne Hancock; liquid jointing material by Held Glue and Compounds, Ltd., and the Kenilworth Manufacturing Co.; and engine paint by Pinchin Johnson. The 87-octane fuel was Shell (supplied *via* Vickers four-way petrol taps), and the oil was Castrol.

GLASGOW and EDINBURGH

ANOTHER aerodrome, more accessible than Renfrew, has been planned for Glasgow, and, though the actual site has not yet been divulged, it is said to be no more than fifteen minutes from the Central Hotel. The area has already been surveyed and the only work necessary on it is the removal of hedges and fences and the filling-in of ditches. An option has, it is understood, been obtained by a concern which has tendered to the Air Ministry for the provision of a Reserve school.

Meanwhile, on September 16, at a meeting of the Lord Provost's committee of Edinburgh Town Council it was intimated that a letter had been received from the Air Ministry approving of the development of Gilmerton as a local aerodrome. The Town Clerk was authorised to negotiate with Scottish Aviation, with reference to the layout and development of the ground, which was purchased last December at a cost of £9,000, though additional purchases are contemplated.

RESEARCH at DUXFORD

A Laboratory Housewarming

The attractive entrance to the laboratories of Aero Research Ltd., at Duxford, Cambs.

PLASTICS and their applications to aircraft construction form the immediate subject for treatment at the new research establishment which was officially opened at Duxford, Cambridgeshire, last Saturday. Dr. N. A. de Bruyne, M.A., Ph.D., has, in point of fact, had the establishment working for some considerable time, and designed and built his little "Snark" monoplane there. Recently, however, Dr. de Bruyne has got the establishment on to a secure footing, thanks to the co-operation of the De Havilland Aircraft Co., Ltd., and various other firms and individuals not forgetting a grant from the Director of Scientific Research, Mr. H. E. Wimperis.

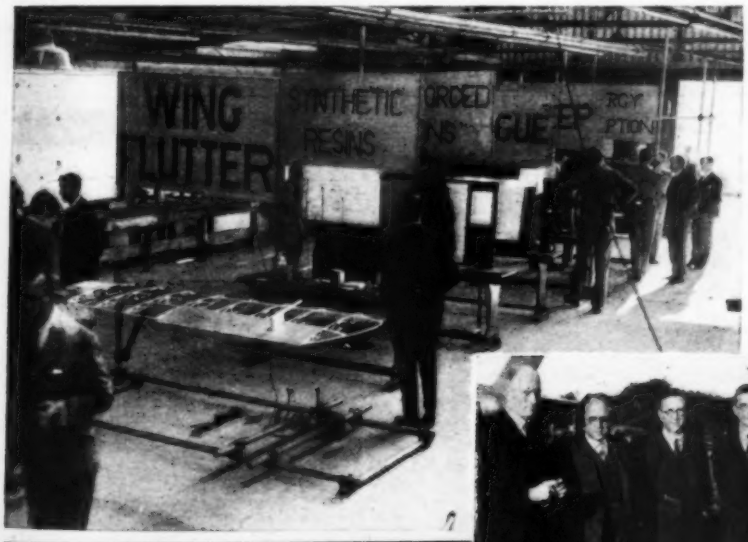
On Saturday Mr. H. Tizard, C.B., A.F.C., F.R.S., chairman of the Aeronautical Research Committee, was to have performed the official opening ceremony, but was unable to do so at the last moment, and Mr. D. R. Pye, M.A., M.I.Mech.E., F.R.Ae.S., Deputy Director of Scientific Research, took his place very efficiently. Mr. Pye referred to the advantages of research being under the control of an individual, and said that Aero Research, Ltd., was very much a one-man show, being approximately 99 per cent. Dr. de Bruyne and 1 per cent. Dr. de Bruyne's father. The De Havilland Company had also helped materially in getting the establishment going. He considered that the concentration of work on structural problems to be carried out at Duxford formed a very excellent complement to the aerodynamic research already being carried out at Cambridge under the leadership of Professor B. M. Melvill Jones.

A tour of the laboratory revealed the fact that a good deal of progress has already been made with the application of plastic materials to aircraft construction. Two blades of a De Havilland variable-pitch airscrew were shown. These have been subjected to severe flying tests, including 16¾ hours with constant pitch changing, five hours at 400 r.p.m. to test the spider mounting, one hour at 850 r.p.m. with the ignition of one cylinder cut out, and the impressive figure of 50 (intentional) backfires, all of which failed to break the synthetic resin blades.

Specimens of synthetic resin products were shown, with tabulated figures of mechanical properties compared with those of different metals, wood, etc. It was explained that synthetic resins are of two classes: the condensation type and the polymerisation. The former gives us phenol formaldehyde and urea and thiourea formaldehyde, which are most promising for aircraft but require reinforcement by some other material of high tensile strength, such as cellulose or fabric.

A demonstration model showing aileron flutter and its cure by mass-balancing was very convincing

In addition to more than a hundred visitors who arrived by road and rail, several took the opportunity to make use of the small aerodrome adjoining the laboratory by flying to Duxford. They included Mr. Whitney Straight, in a Leopard Moth, Mr. E. C. Gordon England, in a Monospar piloted by Mr. Hollis Williams, and Flt. Lt. R. R. Bentley in his Miles Hawk.



General view in the laboratory, showing explanatory facts and figures relating to synthetic resins. In the foreground an aileron flutter demonstration model. (*Flight* photograph.)

Distinguished hosts and guests at the opening ceremony: Left to right, Mr. F. T. Hearle (D.H.); Professor B. Melvill Jones, of Cambridge; Mr. D. R. Pye, Deputy Director of Scientific Research; Dr. N. de Bruyne, Mr. C. C. Walker (D.H.), Mr. G. I. Taylor, Mr. C. C. Paterson, of G.E.C., and Mr. W. S. Farren, of Cambridge. (*Flight* photograph.)

Modernity is the keynote of the Aero Research building shown in the lower view.

IGNITION SCREENING

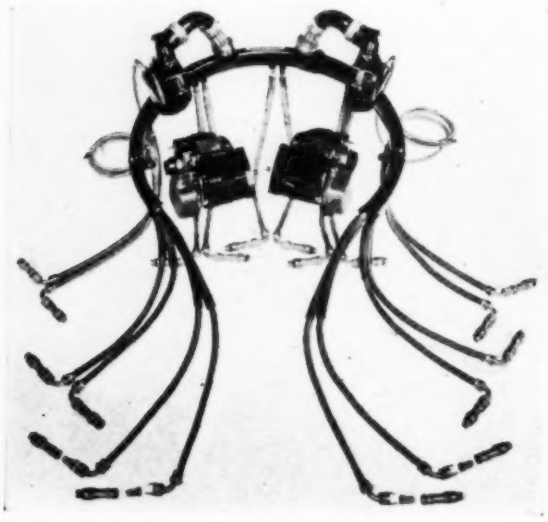
Two New Systems for this Country : A Stiff Proposition

THE practice of screening the ignition systems of aero-engines has not been common in this country until recently, because long and medium waves have been used exclusively for European aircraft radio operation, and these waves, unlike the sensitive short- or ultra-short waves associated with modern receivers and direction-finders, have not been seriously susceptible to ignition interference.

In the U.S.A. it has become standard practice to screen the ignition system of an engine to prevent it radiating electrical impulses liable to interfere with wireless reception and certain engines have been designed with built-in screening or shielding systems.

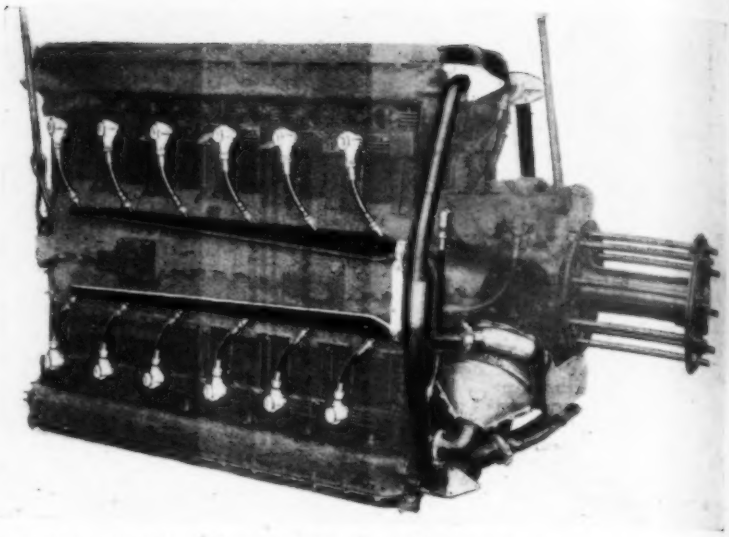
Two systems of screening are now being introduced, one by the Marconi Wireless Telegraph Co., Ltd., and the second by Technical Improvements Co., Ltd.

The Marconi system as applied to a radial engine can be seen to advantage in the accompanying illustration. The makers maintain that simply to enclose the wiring in braiding or tubing electrically connected to "earth" (in this case the engine mounting) is far from being the complete solution of the screening problem. To mention but one difficulty, the shielding, running the whole length of the ignition circuits, forms with the ignition wires and their insulating sheath an electrical condenser across the gaps of the spark plugs. In a badly designed system this would have a very serious effect on the efficiency of the ignition system. They claim that their new system is satisfactory not only as affecting ignition and wireless operation, but that it is proof against petrol, oil and water, and able to withstand vibration.



The Marconi harness as applied to a nine-cylinder radial.

The first sets of Marconi screening harness were produced at the new aircraft establishment at Hackbridge, but already the demand has increased to such an extent that manufacture has had to be transferred to the larger Marconi factory at Chelmsford. Among the thousand sets now being made are a number for the Pegasus XC engines of the Short Empire flying boats.

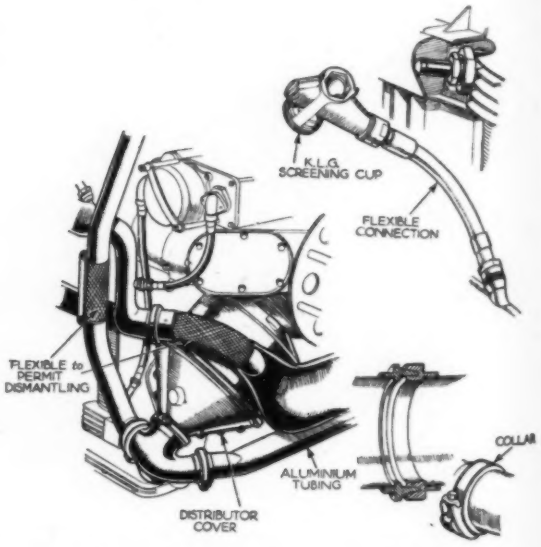


An installation by the Technical Improvements Co. on the Napier Dagger.

Screening the Dagger

With two dozen "pots" and twice that number of sparking plugs, the Napier-Halford Dagger is by no means the easiest aero-engine to screen against ignition interference, particularly as it has four banks of cylinders with but a small gap between each bank of upper and lower pairs. Even so the Technical Improvements Co., Ltd., of St. Jame's Square, London, S.W., seem to have made a thoroughly good job of screening it. The system they have used, and which they will market in this country, is the French B.G. method, which has already had extensive service experience in military and commercial operation on the Continent.

Considering that the Dagger carries something like 300ft. of ignition cable, the figure of 28 lb. as the weight of the complete screening system cannot be considered exorbitant. In the main, the T.I. system (as it will be known over here) comprises unscreened cables running in aluminium tubular conduits, flexible sections being introduced at appropriate points to permit the dismantling of the system in two major parts. The plugs are fitted with K.L.G. screening cups. It is claimed that interference is suppressed at distances of over 20in.



Some details of the T.I. equipment on the Dagger. A slight modification in lay-out may subsequently be adopted.

Private Flying

Topics of the Day

Dangerous Reliability

PARADOXICALLY enough the mechanical reliability of the present-day aircraft engine and, to a lesser degree, the structural reliability of the airframe would appear to be the primary causes of the fact that flying accidents still occur. Happily this reliability is also the reason why the number of these accidents is so much lower in proportion to the number of miles flown.

It cannot be stated too clearly or too often that there is nothing intrinsically dangerous about the flying machine of to-day. One has only to climb up to a safe height and conduct a series of stalled manœuvres with almost any modern machine to realise that the majority of light aeroplanes, at any rate, are extraordinarily docile, turning round to bite only after the utmost provocation. Nearly all of them, admittedly, tend to "settle in" to spins if these are held too long, and some of them, though incredibly patient with the fool human at their controls, are proportionately less patient with their masters once they have taken the bit beween their teeth.

So confident in engine reliability, however, is the present-day pilot that he flies in much worse weather than he did fifteen years ago, and is often prepared, without undue nervousness, to fly in such a way that a successful forced landing would be impossible. With an engine which runs like a watch, he does not obtain the practice in real forced landings which were looked upon by the pilots of a previous generation as the inevitable accompaniments of all cross-country flying.

Trend of Design

MORE important still, this excellent reliability has encouraged owners to demand a higher speed and designers to provide it—with a consequent deterioration in take-off performance, with (sometimes) an increase in landing speed, and with progressively more difficult approaches. There are machines being flown about to-day with which a genuine forced landing in a normal field can only be pulled off by a pilot with a good experience of the type, and which can certainly not be safely flown out of such a field if a successful landing has been made.

There are two modern types on which, so far as I can remember, no pilot has suffered an accident fatal either to himself or his passenger. Each has a low, or comparatively low, stalling speed, and each has a remarkably good take-off. Furthermore, both are being flown about in very fair quantities by pilots of varying experience. Though not, perhaps, theoretically sound, on the principle that if an infinite number of monkeys used typewriters for an infinite number of years, one of them would eventually write the Encyclopædia Britannica—the conclusion is obvious.

Mankind, in spite of its capacity for thinking realistically of the future, is the bravest of all species of living creatures, and is always ready to run before it can walk. So we have transport machines which are just a little too fast for the available equipment flying in weather which is just a little too bad for our operational experience and science; and we have private pilots flying about the country in machines which are just a little too much for them when everything goes very wrong indeed.

For myself, I will fly practically anything round a large aerodrome in reasonably good weather conditions (preferably with an expert co-pilot), but I shall prefer to put a few more hours in my logbook before pushing about the country in all weathers with anything but a primary or semi-primary type. I am happy so long as I feel certain of my ability to put a particular machine down safely in almost any field with no motor to give me a second chance. Anyone who has experienced the combined joys of a world reduced by heavy rain to a few flying tree-tops, and of an intermittently spluttering engine, will feel as I do.

Our Responsibility

THERE is no doubt that the future of civil flying lies to quite a large extent in our own hands, and every civil pilot should both fly and act in public with the knowledge that the whole business is being judged on his own performance. Even to-day the majority of ordinary people probably look on aeroplanes as a means of rapid self-extermination, and on pilots generally as persons who are sacrificing the hope of a to-morrow for the thrill of to-day.

Every time a pilot flies low a hundred people are turned against air-travel; every time a pilot breaks his machine in a forced landing a thousand people read of the "crash," even if a broken airscrew is the only damage sustained; and every time a group of pilots go a little too far during one of their occasional parties, the ordinary mortal obtains the idea that pilots in general are a wild bunch of people. Some joy-ride and circus pilots have obtained the most unenviable reputations in their efforts to convince themselves that they are "tough."

Unfortunately, it is the pilot who flies badly, crashes, or makes an exhibition of himself who is noticed by the general public, while the hundreds of individuals flying around quietly in the normal course of events are never imagined—and, by their very nature, never seen. Quite apart from the scores of transport pilots who take their job seriously, I know dozens of private and professional pilots who have never so much as damaged a tail wheel fitting, and who are certainly never seen shooting up the landscape or generally playing the fool.

Even if the mere desire to help rather than to hinder the movement is not enough to stop some people from trying to break their necks, these might also remember that, as the sky is filled up, the number of restrictions suffered will be in direct proportion to the number of minor or major accidents occurring during the period preceding any new legislation. The freedom of many is being jeopardised by the foolishness of few. INDICATOR.

Private Flying

FROM the CLUBS

Events and Activity at the Clubs and Schools

MIDLAND

TWO of the Wolseley-engined Hawker Tomtits (G-ABOD and G-ABAX) have been taken over by the S.U. Carburetter Company. Mr. D. Winning has gone solo.

For the week ending October 2 flying times were 15 hr. 30 min. dual and 13 hr. 40 min. solo and passenger. Mrs. E. M. Bleksley has become an ordinary member and Mr. E. E. Hughes-Williams has gone solo.

LEEMING

The flying times at Leeming and York for the week ending September 26 were, respectively, 33 hr. 45 min. and 81 hr. 40 min. New Club members were Mr. H. I. M. Martineau, Mr. Dacre Stubbs and Mr. Cole. During the past fortnight cinematograph performances have been given in the York clubhouse by Mr. Alex Monteith and Mr. Adams. The Lord Mayor and Lady Mayoress of York were present.

BORDER

The Club members are still doing quite a lot of cross-country and two machines flew to Portsmouth to see the start of the Johannesburg race. The annual general meeting is fixed for October 27. A supper is being arranged for members and their friends afterwards and a film on "Seaplane Instruction," kindly lent by the Royal Singapore Flying Club, will be shown. Mr. R. Taylor has carried out his first solo, and new members are Miss Carus, Mr. R. Taylor, and Mr. A. Scott.

LONDON

New members last week were Misses M. S. N. Ractliffe, H. Rendall, and Messrs. H. Akef, P. M. Reddy, C. H. Robson, J. W. Tangye, R. H. Tasker, I. J. Wallace and the Hon. H. Howard. The flying time totalled 115 hr. 50 min. Mrs. Davis and Messrs. P. W. Rowley, H. Deen and J. W. B. Isaac have gone solo, and Mr. M. A. Lush has completed his "A" licence tests. For the previous week the total was 82 hr. 50 min., and Messrs. F. E. Tasker and J. L. Waters completed their "A" licence tests.

YAPTON

New members are Messrs. M. E. Hearn and Ronald Bows. The latter is the first pupil under the new £15 "A" contract and has gone solo and qualified in six days. Mr. E. Munch has passed his "A" licence tests. Welcome visitors were Lt. Booth and Mr. C. G. Alington in their Johannesburg Race Eagle. The latter is the brother of Mr. W. J. Alington, the Club instructor, and the third brother, of course, was in the unlucky Eagle.

The total flying time for September was 112 hr. 15 min. and for the first three days of October 6 hr. 35 min. Mr. E. G. Mortimer has become a flying member and Mr. John Hunter has passed his "B" licence tests in cross-country and general flying. Mrs. Irwin and Messrs. Ward, Prentice, Holland and Benge flew over to Portsmouth for the start of the Johannesburg race.

SOUTH COAST

In spite of a fair amount of mist, over 46 hours' flying was done in the week ending September 26. Mr. Smallman, the secretary, returned from his Continental tour, having visited Brussels, Cologne, Schipol, and the new Ypenburg airport at the Hague. Mr. D. N. H. Ogilvy has gone solo and Mr. H. G. Reed has taken his "A" licence. New members include Messrs. C. H. Smith and J. M. Symmons.

During the last week of summer time just over 40 hours' flying was done by members in Club machines. The second round of the Gorringe Challenge Trophy forced landing competition is being held this week and the cup will be presented at the annual dinner which will take place toward the end of November. New members, apart from those mentioned above for the previous week, included Capt. MacGregor and Messrs. M. Miller and C. F. Gordon.

CINQUE PORTS

Curiously enough, the first week in Autumn produced a large batch of first soloists. These were Messrs. C. Cameron, C. I. Wells, H. Friedrich, C. H. Hallifax, and G. C. Steyne. The second instructor, Mr. L. H. T. Cliff, has resigned from the staff and his place has been taken for the time being by Mr. W. E. Lewis. Mr. J. Currie, A.R.Ae.S.I., has joined the staff as works manager and has been engaged in installing new plant in order that the Club may undertake an even greater amount of C. of A. work, etc., than in the past. New members last week included Messrs. J. Wingate, H. P. Higman, H. C. McPhail, T. R. Beckett, and K. V. Badger.

Flying hours for the week ending October 3 totalled sixty and for September 250. Five members in three machines flew to Portsmouth to see the start of the Johannesburg race, which was of particular interest to the Club because Ken Waller was a pupil and instructor there, Charles Scott is a Vice-President, and C. G. M. Alington learned to fly at Lympne. Mr. J. D. Ward and Mr. C. F. Hallifax have passed their "A" licence tests, the former a day before he left to join his regiment in Egypt.

DONCASTER

For the week ending September 25 Club machines flew 15 hr. 25 min. Mr. S. M. Kirsch became a member and Mr. E. Bromley went solo.

NOTTINGHAM

For the week ending September 24 Club machines logged 36 hr. 35 min. Mr. A. G. S. Anderson took his "A" licence and Miss R. Bradshaw and Mr. D. Cottrell went solo.

YEADON

Club machines flew 59 hr. 50 min. last week. Mr. F. Messon has joined the Aviation Group and Mr. C. M. Blow, a member of the Group, has gone solo. Mr. S. E. Moorhouse has passed his "A" licence tests.

LIVERPOOL

The Club's fleet now comprises three Tiger Moths, two B.A. Swallows, one Avian and one Leopard Moth. During this month four flying members, one associate and a number of temporary members have joined the Club. Flying time for the month to the 26th was 131 hr. 15 min.

NORTHAMPTONSHIRE

Flying times, in spite of morning mists, have maintained a steady average. Capt. Sir Peter Grant-Lawson has gone solo, and "A" licences have been taken by Messrs. L. R. Warren and A. J. Claydon. New flying members include Capt. F. T. Loftus, Mr. H. I. Rattut, and Mr. E. C. Booth.

REDHILL

For the week ending September 25 the flying time was 60 hr. 25 min. Thirteen members in six Club machines gained nine free breakfasts in the Reading "dawn patrol."

In the following week the time flown was 50 hr. 25 min., bringing the total for September to 264. There were three new members.

NORTH BRITISH

Flying time maintained an average level in face of high winds and excessive fog. New associate members include Mr. and Mrs. Main and Mrs. Wilberforce has become a flying member. The North British Aero Club closes for the winter on October 11, but although the school will be shut down, the aerodrome will remain open to visiting pilots.

C. A. S. C.

On September 27 a dozen members flew between them 12 hr. 40 min. On Sunday afternoon six members flew in formation to Broxbourne and Mr. E. F. Burchell made his first flight with the Corps.

Last Sunday members flew eight hours. Messrs. Venman and Cowerdine made their first flights as probationary members.

CAMBRIDGE

Marshall's Flying School, The Cambridge Aero Club, and the University Aero Club, logged between them 50 hr. 25 min. during the week ending September 27. Messrs. Cartwright and Humphreys made their first solos and Miss Harding completed her "A" licence tests. Mr. Noordink and Mr. Worsdell passed the night flying tests for their "B" licences.

Flying times during the week ending October 4 aggregated 70 hr. 25 min. Mr. Wade joined the School and Mr. Salisbury went solo.

HANWORTH

The aerodrome being largely fog-bound between September 20 and 27, flying time reached the comparatively low total of 52 hr. 55 min. Miss E. Rhodes and Mr. E. J. Wyborn became members and Mr. P. O'Reilly (National League of Airmen) went solo.

Flying times last week amounted to 56 hr. 20 min. and the following became new members:—Miss J. Saunders, Messrs. L. E. Knight, Benno G. de Greuw, D. A Woolse (all members of the National League of Airmen), and J. Adams. Miss Peake Knight has passed her "A" licence tests.

ROCHESTER

On Wednesday, September 30, a dinner was held at Rochester to propose a flying club at the municipal airport. It was attended by the Mayor (Councillor W. Longley), the Town Clerk (Mr. John Percival), Mr. Francis Short of Short Bros., Capt. E. I. Short of the Eastbourne Flying Club, Councillor Phillips and citizens of Rochester, including Miss Gladys Batchelor, the "air queen." The formation of a flying club was proposed by the Mayor, seconded by Councillor Phillips, and carried unanimously. The Mayor promised his full support, and Mr. Francis Short, on behalf of his co-directors, also assured those present that they would do everything possible to assist the club in every way. The following elections were made: President, The Mayor of Rochester; Vice-President, Mr. Francis Short; Chairman, Mr. R. Gordon; Vice-Chairman, Capt. E. I. Short; Secretary, Mr. C. Pynsent; Assistant Secretary, Mr. M. G. Chadwick; Treasurer, Mr. Anderson.

READING

New pupils include Miss Holmes, the Hon. Standish Vereker, and Messrs. Davidson and Sandburg, who has gone solo. "A" licences have been taken by Messrs. Kidby, Tyson and Torrie.

PORTSMOUTH

New members last week were Messrs. R. Oliphant, H. Harkness, A. I. Richardson, O. H. D. Blomfield, F. B. Chapman, C. G. Wanhill and A. G. Corbin.

DONCASTER

For the week ending October 2 aircraft of the Doncaster Aero Club flew 11 hr. 5 min. In spite of unfavourable weather a successful "dawn patrol" was held at the airport last Sunday week.

SOUTHEND

Capt. C. E. Penny has taken over flying instruction at the Southend Flying Club. The annual supper ball will be held on Wednesday, October 28. Tickets may be obtained from the Secretary at the airport.

YORKSHIRE

Machines flew 56 hr. 40 min. in the week before last. The time for September was 233 hr. 45 min., an increase of over 100 per cent. on the figure for September last year. Messrs. O. G. Thomson and A. Douglas passed their "A" licence tests last week and Miss Mary Gillam and Mr. J. C. Oliver became associate members.

BRISTOL

Flying time for the week ending September 26 was 21 hr. 25 mint.; last week's figure was 22 hr. 20 min.; the total for September was 101 hr. 55 min.; and for the half-year ending September the aggregate was 933 hr. 50 min., which is an increase of 63 hr. 25 min. on the corresponding half of last year. New members are Mrs. M. E. Blount and Messrs. A. H. M. Derrick and E. G. Goscombe.

ABRIDGE

Although the Abridge Flying Club has only been operating for two weeks, the support is gratifying. To date there are forty-three flying members. Mrs. Hyde Edwards made her first solo on Friday evening of last week. Visitors to the Club have been Mr. Kenneth Firth on his Dragonfly, Mr. Field Richards on the Taylor Club, which he demonstrated, Major Cooper with his Autogiro, two machines from Cambridge and two from Broxbourne.

LINCOLNSHIRE

The Lincolnshire Aero Club put in more than the average flying time during September. The new B.A. Swallow with Cirrus Minor engine was delivered during the month and immediately proved very popular. Just over 50 hours were flown on this machine alone during the month. Messrs. Brand and Rowbotham have taken their "A" licences and have started on courses for the "B." Mr. French has gone solo and Miss Bacon and Mr. Gallimore have become flying members.

HERTS AND ESSEX

Bad weather continued to curtail flying during the fortnight ending September 25; the time was 162 hr. 58 min. Miss V. W. Holmes went solo and Messrs. Archer-Edwards and G. H. Hadland passed the "A" licence tests. Messrs. B. B. Nicholson and S. H. Engineer, of the Bombay Flying Club, who arrived last June to get their "B" licences, have achieved the object of their visit and departed for Bombay on the 22nd in their Moth Major and B.A. Swallow, accompanied by Mr. Philip Stone and Flt. Lt. Simpson. Mr. George Weston has taken delivery of a Swallow. New members lately enrolled were Mrs. A. Turner, Miss G. Baker, Count Hilaire du Berrier, and Messrs. R. E. Barton, N. Turner, and A. V. G. East. The latest additions to the Club fleet are a Stinson Junior and a B.A. Swallow.

BROOKLANDS

During the absence of the late Capt. Findlay and Mr. Ken Waller on the Johannesburg race, Mr. Sholto Douglas has been instructing at Brooklands. New members last week were Mrs. H. M. Richardson and Mrs. M D. Riggall and Messrs. J. H. Bentley, E. M. Edlin, E. M. Gill, and Capt. W. Ogden. Mr. R. M. Rathor has passed the height test. Mrs. C. M. Kendall and Messrs. Leversedge and Lindsay Smyth have passed their "A" licence tests. The new welding and tinsmith's shop is now in action and the service department has been working overtime. The extensions to the aerodrome, the preparation of which has been carried out by The En-Tout-Cas Co. (Syston), Ltd., will shortly be open for flying operations. On October 11 it is hoped to arrange a demonstration of Phillips and Powis machines, and an original forced landing competition has been organised for October 18.

Four machines went to Portsmouth for the start of the Johannesburg race and a host of members went down by car. Little was it thought that the race would have such a tragic effect on the Club. New members last week included Messrs. A. L. Munro, E. Kirkland, J. A. Moon and Mr. Loftus. Messrs. M. R. Rathor and C. W. P. Hampton have passed their height tests. Warner Brothers have recommenced activities at Brooklands on their new flying film. Mr. J. A. Moon is taking a "B" licence course and Capt. G. Bremridge is finishing off instruction for the instructor's certificate. Capt. Davis's D.H.53 with Scott engine has been doing its taxying test and should be fully fledged any day now.

BENGAL

During August the Club was open for solo flying by approved pilots, the flying return showing 34 hr. 55 min.

MADRAS

Flying time at Madras for August was 132 hr. 10 min. Mr. S. Bhuyan qualified for the "A" licence.

EAST AFRICA

The number of members who have taken their "A" licences under the Aero Club Flying Subsidy Fund now totals eleven. The scheme was put into operation last November.

STRATHTAY

At the statutory general meeting of the Strathtay Aero Club, Ltd., it was revealed that there are now seventy-six members and that sixteen of the pilot members are training for "A" licences under the instructor, Mr. John Miles. Mr. Edward T. Halley was the first member to go solo. During the three months since the incorporation of the Club a total of 114 hours have been flown, of which seventy-nine have been dual instruction. The aeroplane is now in the workshop undergoing the annual inspection and overhaul for the C. of A.

SCOTTISH

Several teams took part in the race for the Fullarton Trophy at Renfrew aerodrome, which was held under the auspices of the Scottish Flying Club. The following pilots composed the winning team: Messrs. J. C. Pinkerton, D. Farquhar, and M. Robinson. The runners-up were G. P. Ross, Dr. J. M. Fleming, and R. F. Boyd. Mrs. D. R. Miller handed over the trophy. Earlier in the afternoon Capt. G. C. Walker, who has been a member of the general committee of the Club since its inception, was made an honorary life member of the club. Capt. Walker was an honorary instructor of the Club, and is now chief instructor at the Perth School.

NORFOLK AND NORWICH

Members flew for nearly forty hours last week, over half of which were compiled during the week-end. Mr. D. Moynihan was so impressed by the exceptional visibility last Saturday afternoon, that he took his machine up to a height of some 12,000 ft. Somebody may feel inclined, after Sqn. Ldr. Swain's effort, to make an attempt to beat the Club's altitude record, which was made by Mr. S. Hansel in 1932, when he reached 19,000 ft. solo and 15,000 ft. with a passenger. Mr. J. D. Muir, of Poole, is a new pupil, and Mr. J. Healy made an extremely good first solo flight. There was a very gratifying attendance of pupils at Flt. Lt. F. T. K. Bullmore's lecture last Tuesday week on map reading. On Tuesday of this week the chief instructor dealt with Navigation.

Mrs. Markham Honoured

SPEAKING at a luncheon given in London last week by the Anglo-American Oil Company in honour of Mrs. Beryl Markham, Capt. Edgar Percival said that her navigation and course-keeping during her Atlantic flight must have been extremely accurate. He recalled that when her position was given by a ship some 200 miles off the Newfoundland coast she was exactly on her course. That was no mean feat after 1,500 miles or so with no position check.

Though they might sometimes be called "stunt flights," such flights as hers had a great bearing on the future development of air services. They brought home to the man-in-the-street that long distances could be covered by aircraft. Also, as in this instance, they checked up what weather conditions were liable to be met across the Atlantic.

Mr. Frederick J. Wolfe, chairman of the Anglo-American Oil Company, said that they, for their part, were proud of this latest addition to the Company's personal list of Atlantic heroes and heroines, and of their association on the fuel side with almost every such epoch-making achievement of recent years.

Mrs. Markham expressed the opinion that she would "rather fly the Atlantic any day" than make a speech, but made a sincere and graceful little one nevertheless.

Air Touring Facilities in Luxembourg

THE Royal Aero Club announces that an agreement has been reached with the Aero Club of Luxembourg whereby landing and take-off fees will be waived and free garage given for a period of 48 hours to members of the Royal Aero Club producing their F.A.I. identity cards.

Walfordange aerodrome is on the small side and care should be exercised in alighting there, but a new aerodrome is now in course of construction and will be opened next year.

Members are reminded that landing fees are now waived and free garage given for a period of 48 hours in the following countries: Germany, Austria, Belgium, France, Greece, Hungary, Italy, Japan, Lithuania, Poland, Rumania, Yugoslavia, Holland, Luxembourg.

Woodley pupils—with their satchels!—preparing for the day's schooling.

EXPANSION UNLIMITED

A Visit to Phillips and Powis' Civil Training School at Woodley

LIKE Topsy in "Uncle Tom's Cabin," the aerodrome at Woodley, Reading, has "just growed." It is growing daily. Skeleton hangar framework is reared against the west. Everyone has plans for the future, and everyone suffers the present growing pains gladly, mindful of what is to come. To-morrow and to-morrow and to-morrow, but not in creeping pace, the new Woodley will emerge from its chrysalis.

In this kaleidoscopic scene there is just time to see the vestiges of the past, and just enough hint of the future to see how soon that past will be forgotten. The original flying school is still active, but it is swamped by the activity in producing Phillips and Powis aircraft. Less than a year ago the R.A.F. training school was established, and already the restless training of pilots takes a commanding position in the sky. Of course, the Miles aircraft are increasing in scope almost daily, and, in more than fulfilling the hopes of the designers (for Mrs. Miles is, one may say, the better half in at least one sense), these aircraft have become of chief importance at Woodley. In a short while a complete change of scene will take place at Woodley, though the only definite plan is that the days of the present clubhouse are numbered. Its place will be taken by a new building to be erected on the east side of the aerodrome, where tall elms flank the boundary.

In the midst of this transient scene Flt. Lt. J. F. Moir is running the new training school as chief flying instructor. The school began its career in November, 1935, and there are now ten other instructors, all of whom have served in the R.A.F.

The aerodrome lies on high ground with a firm gravel subsoil. It is self-draining, and during the wet season the aerodrome shows little tendency to bog to the interruption of flying. The terrain over which the school operates is idyllic, for the Thames sweeps in a great bend to within three miles of the aerodrome, and the South Oxfordshire hills come down to its north bank.

The school at Woodley is, like Gaul, divided into three parts, which are spread over one side of the aerodrome. On the east is the hangar, with its twenty-one aircraft; the lecture rooms and offices are in the centre, and the mess and quarters lie to the west.

The service hangar comes under the ægis of Capt. Ayre, whose co-operation with the school is close. Each morning the quota of aircraft are trundled down to the school,

Serious study—to judge by the facial expressions—of the mysteries of the Vickers' gun.

Designed primarily for utility—the school building.

and in the evening back they come. Capt. Ayre arrived at Woodley in February this year, and he has gradually kneaded the arrangements to the best advantage. But in so short a time he has not carried out all he wants to do, so that, although things are now running very smoothly, it would be fairer to say little about his activities. There are four units under his charge: the Phillips and Powis flying school aircraft, the R.A.F. training school aircraft, the overhaul repair section, and the engine workshops. The Hawk Trainers require a minimum of maintenance, and in the nine months the school has been running they have stood up to the wear and tear remarkably well.

Incidentally, the hangar over which Capt. Ayre rules is the embodiment of the story of Woodley. It has been built and enlarged from time to time by at least four contractors, among whom Boulton and Paul have had the major share. Even further enlargements may be expected in the near future. One improvement shortly to be introduced is the arrival of a Thomson Bros.' refuelling unit, which is ideal for school work where continual refuelling is required.

Some hundred and fifty yards west lies the school lecture rooms and offices. This building faces the landing ground, and backs on to the road. It is cubic in silhouette, plain and unadorned in a strictly serviceable manner, incorporating all the necessities of a working unit. It is the work of the En Tout Cas Company, and the interior fittings were supplied by Mr. McCarthy Fitt, of Trinity Place, Oxford Road, Reading, one of the leading Berkshire contractors.

The three lecture rooms and the photographic dark room are on the first floor, and the remainder of the offices lie on the ground floor. The chief ground instructor, F/O Manning Fox, has a large room with windows on the south and west, the other two rooms being much smaller. Engines and rigging are taught by F/O Formby. Mr. Broad has charge of the armament instruction, and very illuminating are his lectures. His teaching is brightened by an analysis of the exploits of an American ace of fiction who is known as "G.8," and whose adventures are recounted in books sold at a sixpenny store. By the time Mr. Broad has dealt with this ace flier his pupils have had aroused an abiding interest in armaments. Parachute instruction is given by Mr. Fane, and Mr. Lardent inculcates the principles of photography.

The Control Section

The chief instructor's office is on the ground floor between the instructors' "robing room" and the timekeeper's room. The rear is made up of the accountant's room and offices. These four rooms comprise the control section of the unit. A corridor separates them from a central section, taken up by pupils' common room, pupils' flying changing room, and the parachute section. Beyond

The flying instructional staff at Woodley (left to right): Flt. Lt. A. L. Duke, F/O. J. D. Slade, Mr. H. W. Skinner, Mr. H. A. Roxburgh, F/O. A. R. Wilson, F/O. P. H. Maxwell, Capt. H. A. Crommelin, Flt. Lt. G. C. O'Donnell, Mr. W. H. Dudley, F/O. M. R. Trewby, Flt. Lt. J. F. Moir (chief instructor)

Part of the school's Hawk Trainer fleet at Woodley, with the school building.

lies the third section, in which are lavatories, the personal clothing storeroom, and the doctor's section. This latter is exceptionally well appointed, and everyone is justly proud of it.

The mess lies along the road and on the western extremity of the aerodrome. A large house situated there has been taken over and converted to provide accommodation for those being trained. Under the fitting name of Hawkhurst, what was formerly the St. Luke's Home for Sick Children has now become, by a triumph of ingenuity, a mess and quarters. As the edifice now stands it bears little relation to the former house, which was by no means large enough. Mr. McCarthy Fitt has efficiently added wings, closed in a veranda, constructed partition walls, and adapted the premises to the requirements of some thirty to forty young men. This conversion work was done to the design of the architects, Messrs. Guy Morgan and Partners, of 9, Gower Street, London, W.C.1, and was carried out in five weeks working night and day.

On the ground floor the dining-room adjoins the kitchens, and in order to accommodate the numbers the room has been built out towards the garden. The ante-room adjoining was formerly a small room with a veranda, but the veranda is now closed in. Its french windows give access to the lawn, which is monopolised by a tennis court whose surrounds are flower beds of monastery garden neatness. A large kitchen garden supplies Hawkhurst with fresh vegetables. Next to the ante-room is a games room which is an airmen's common-room when they are on the course.

This constitutes the old house, and to it has been built a complete wing containing four double quarters on ground and first floors. Two pupils share one room. As part of the old first floor was a long dormitory this had to be converted to a number of partitioned rooms, whose ingenuity in construction is amazing. These rooms use a communal bathroom where showers, hand-basins and baths are placed.

There is a resident "nurse" to the pupils, Mr. Hackett, who acts as mess president. Guest night features once a week, and the pupils must be in by 11 o'clock unless late leave has previously been obtained.

The present course has thirty pupils training under the direct entry to Reserve scheme. These pupils receive the rank of sergeant, and after their two months' training and fifty hours' flying they return to civil life. Five hours of the fifty are given to instrument flying, and the school has four Miles Hawks and three Tiger Moths fitted for this training.

All the instructors live out, and Flt. Lt. A. L. R. Duke may be said to be wrapped up in flying, for not only does he fly all the week as an instructor at Woodley, but at week-ends he departs to Yapton, where he has his own training school. The other instructors are Flt. Lt. G. C. O'Donnell, F/O.s J. D. H. Slade, A. R. Wilson, M. R. D. Trewby and P. H. Maxwell, Capt. Crommelin, Mr. H. A. Roxburgh, Mr. W. H. Dudley and Mr. H. W. C. Skinner.

So much for the school and its serious business of teaching the new Air Force to fly. But one leaves Woodley with two things in mind: the conspicuous absence of Flt. Lt. Rose and the preponderance of those skeleton hangars. Some of the new hangars are half complete. There are circular saws, canteen tables, fearsome electric drills and blow-lamp cylinders. The others have their foundations down, and there is an air of expectancy over all. Indeed, the feeling of expansion was oppressive until a club member frivolously pointed out that the scheme was to extend the present hangars across the flying field and finally do away with all that useless grass lying there and unbuilt on.

Forthcoming Events

October 8. R.Ae.S. Lecture*: "Tapered Wings," by Dr. G. V. Lachmann.
October 15. R.Ae.S. Students' Section Lecture†: "Recent Developments in Aeronautical Research," by Mr. E. F. Relf.
October 22. R.Ae.S. Lecture*: "Economics of Airline Operation," by Mr. L. T. H. Greig.
October 25. Aero Club de France: Saigon Race.
October 30. Croydon Airport Staff Ball.
November 3. R.Ae.S. Students' Section Lecture†: "Technical Aeronautics in Australia," by Mr. J. V. Connolly.
November 6. Norfolk and Norwich Aero Club: Annual Ball.
November 12. R.Ae.S. Lecture: "Skin Friction," by Dr. F. W. Lanchester.
November 13-29. International Aero Exhibition, Paris.
November 19. R.Ae.S. Lecture*: "Aerodrome Design," by Mr. Nigel Norman.
December 1. R.Ae.S. Students' Section Lecture†: "Stressed-skin Construction," by Mr. C. Moore.
December 10. R.Ae.S. Lecture*: "Civil Flying Boats," by Mr. A. Gouge.
December 17. R.Ae.S. Lecture*: "Profile Drag," by Prof. Melville Jones.
1937
January 14. R.Ae.S. Lecture*: "Magnesium Alloys," by Dr. C. H. Desch.
January 28. R.Ae.S. Lecture*: "Plastic Materials," by Dr. N. A. de Bruyne.
February 11. R.Ae.S. Lecture*: "The Automatic Pilot," by Mr. F. W. Meredith and Mr. P. A. Cooke.
February 18. R.Ae.S. Lecture*: "Compression Ignition Engines," by Mr. A. H. R. Fedden.

*All R.Ae.S. lectures take place at the Royal Society of Arts, 18, John St., London, W.C.2 at 6.30 p.m. Admission is by ticket obtainable through a member.
†R.Ae.S. Students' Section meetings take place at 7 p.m. in the R.Ae.S. Library.

MORE ABOUT the ALTITUDE RECORD

Messages of Congratulation : Items of Equipment : An Historical Comparison

FOLLOWING Sqn. Ldr. Swain's successful attempt on the altitude record, the following message was received by Viscount Swinton, Secretary of State for Air, from Balmoral Castle:—

"The King will be glad if the Secretary of State will convey to Sqn. Ldr. Swain His Majesty's congratulations on his fine achievement in breaking the altitude record with all-British equipment.—HARDINGE."

Viscount Swinton personally congratulated Sqn. Ldr. Swain—whose experiences are related on pages 360a and 360b of this issue—on his achievement. He received a full account of the flight from Sqn. Ldr. Swain.

The Secretary of State has also sent telegrams of congratulation to the chief superintendent of the Royal Aircraft Establishment, South Farnborough, and to the chairman of the Bristol Aeroplane Company.

The S.B.A.C. wired as follows to Viscount Swinton:—

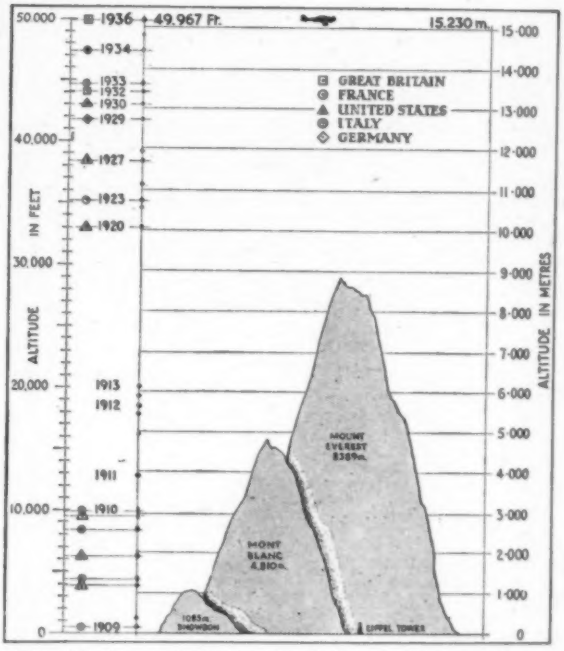
"The Society of British Aircraft Constructors desire to congratulate the Royal Air Force on regaining the height record for Great Britain.—S.B.A.C."

The following reply was received:—

"Air Council greatly appreciate your message of congratulation on the success obtained by Sqn. Ldr. Swain in the recent high altitude flight. The result is particularly gratifying in that it affords still further evidence of the high standard of design and construction of British aircraft, engines and equipment."

* * *

It is now permissible to mention some further items of equipment used on the Bristol 138 monoplane (which was described exclusively in *Flight* last week). The magnetos of the special Pegasus engine were B.T.H., and K.L.G. plugs were employed. The carburation system was by Claudel-Hobson. Hoffmann ball bearings and Tecalemit oil filters also figured in the specification. The correct description of the plywood employed in the construction is Saro, supplied by Laminated Wood Products, Ltd.



The altitude record step by step during twenty-seven years. Plain dots on the second vertical line indicate improvements on the record by the same country.

THE MONOSPAR CROYDON'S AUSTRALIAN FLIGHT

SOME comments on the recent flight to Australia by the Monospar Croydon have recently been issued by General Aircraft. The main object of the flight was to take out a demonstration machine in an enterprising manner, so constituting a British reply to the intensive American aircraft sales campaign now being waged in Australia.

It was decided that if the demonstration was to be of any value to potential customers the machine must be operated under service conditions. It was therefore made a feature of the flight to carry full load throughout and at no time to fly above the normal cruising speed. The flight started with the following as crew: Lord Sempill (in charge of the flight), Mr. T. H. Wood (chief pilot and captain); Mr. Gilroy (wireless operator); and Mr. Davies (ground engineer).

Lord Sempill was unfortunately unable to continue the flight beyond Karachi, owing to the urgency of personal business in this country, and returned by K.L.M. At Karachi his place in the machine was taken by Mr. Crocombe, the chief designer to General Aircraft, Ltd., who had been sent out to Karachi to supervise repairs necessitated by a bad landing.

The flight started on July 30, and the intention was to make a fast journey to Australia, stopping regularly at reasonable intervals, as would be done in the case of an ordinary commercial undertaking. The average speeds from London (Hanworth) to Jask were as follows:—

	Distance. Miles.	Av. Speed. m.p.h.	Flying Time. Hours.
Vienna	787	175	4.50
Athens	791	153	5.17
Aleppo	754	139	5.43
Bushire	940	167	5.62
Jask	485	165	2.94

After Jask very bad weather conditions were met on the way to Karachi, and a return to Jask had to be made. At this point, due to the bad landing aforementioned, damage was done to the tail of the machine. A temporary repair was effected and the machine flew to Karachi, where examination showed the damage to be more extensive than had been anticipated, and, due to local limitations, the repairs took longer than had been expected. Further delay was caused by the fact that Mr. Crocombe was involved in an Imperial Airways' mishap on his way out, and the repairs were not completed until September 11.

As there was no further possibility of making a very fast flight from London to Melbourne it was decided to proceed by easy stages and to give demonstrations *en route*:—

	m.p.h.	
Karachi–Jodhpur	179	
Jodhpur–Allahabad	192	
Allahabad–Calcutta	186	
Calcutta–Rangoon	172	
Rangoon–Penang	171	
Penang–Batavia	165	
Batavia–Sourabaya	155	Head winds
Sourabaya–Koepang	172	
Koepang–Darwin	160	
Charleville–Melbourne	175	
Karachi–Melbourne	171	

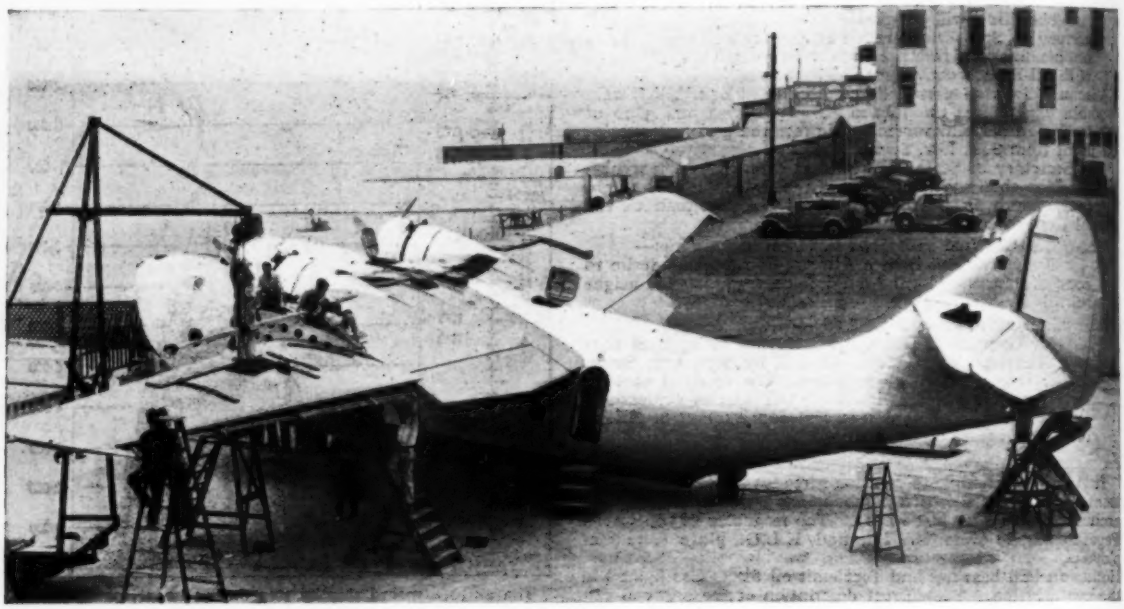
General Aircraft express their gratitude to Imperial Airways' staff at Karachi, to the Chief Aerodrome Officer, Com. Watt, and to Mr. A. W. Wilson, of the A.I.D.

By having their chief designer on board the company were enabled to record a large amount of detailed information concerning the behaviour of the machine. Certain points which would increase the comfort of the passengers in extreme temperatures were discovered, but Mr. Crocombe reported that, taken as a whole, the machine was most satisfactory.

The two engines of the Croydon are Pratt and Whitney Wasp Juniors, and General Aircraft state that their employment of American units is simply due to the fact that suitable British engines are not available owing to the heavy volume of work which makers are handling. It is, however, hoped that engines such as the Bristol Aquila will, in due course, be available for the purposes. Meanwhile, they are making a point with the Australians that it would be bad policy to withhold a very suitable British machine simply because British engines of the correct size were not available.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —



DOUBLE-DECKER DOUGLAS. A brand-new Douglas civil flying boat which appears to be fitted with a pair of Wright Cyclones. It will carry up to 36 people or fuel for 3,300 miles. The span is 95 feet and the cruising speed about 160 m.p.h.

THE WEEK AT CROYDON

Transatlantic : One-Wheel Landings : New Equipment for K.L.M. : Converting the "Converted"

I HEAR there are now some six or seven Imperial Airways pilots down at Hamble on flying-boat training. Rumour—of the bar and buffet kind—has it that Capts. Armstrong and Cumming are to be two of the first to fly the new boats on service, but I find no official confirmation of this.

Many Imperial Airways "trainees" are anticipating the possibility of a job as mail clerk-cum-purser on the Transatlantic flying-boats. The time is, of course, ripe on many routes for the freight clerk who would prepare the necessary documents whilst flying, thus saving considerable time on arrival. Bigger machines will doubtless bring this about. A "duty entry" for a dutiable parcel—and practically all parcels pay duty these days—takes a clerk about ten minutes to prepare before it is presented to Customs. Everyone, incidentally, is so keen to see the Empire boats that Imperial Airways have arranged a staff excursion, with special train to Rochester, a free tea, and all the fun of the fair.

There has been a lot in the papers lately about air stewardesses. Swissair introduced this American habit and K.L.M. tentatively followed suit. The latter company is now convinced that for all but the biggest machines, on which meals are served, the stewardess, or air hostess, is ideal. Tea, coffee and sandwiches, with, perhaps, a whisky and soda or its equivalent, are all that the average passenger needs on a short flight of under two hours' duration. Stewardesses can serve such light refreshments, point out to passengers items of interest on the way, show them where they are on the map, and give the best possible attention to women and children. K.L.M., I hear, chooses girls of good education, and all of them have to speak four languages.

There has also been excitement in the papers because somebody landed a moderate-sized aeroplane at Renfrew on one wheel. Hailing that sort of incident as a miracle will amuse old-timers. Capt. "Jimmy" Youell landed a fully loaded Argosy at Croydon some years back without turning a hair. Commander Parmentier did likewise in Paris with a Fokker F36 not long ago, when practically every seat was occupied; in his case the huge tyre went off bang in the air, and I am told that everyone thought that land batteries had opened fire. Dozens of cases have occurred though such incidents are rare to-day. The first Douglas D.C.3 is, I understand, definitely on the way from America to Holland, on board the s.s. *Statendam*. Commander Scholte, who knows the United States well, went over there to take delivery of the big twenty-one seater, christened *The Ibis*, and he flew it from Santa Monica to New York. Seven more of these machines are on order.

Last week-end some eighty visitors, said to be Air Ministry employees, were being shown round the airport. More concerned, as they were, with the theory than the practice

of the business (as, for example, writing stern letters to pilots said to have infringed the regulations) only about sixteen of them wanted to fly. Enter Mr. Joe Chamberlain, mass hypnotist No. 1 of Surrey Flying Services. Before he was through talking, about sixty of them found themselves issued with tickets. It is not very long ago that Joe almost talked a quiet stranger into taking a flip in an aeroplane, explaining that there was nothing to be alarmed about. Subsequently, it transpired that the spell-bound stranger was a well-known foreign designer.

K.L.M., by the way, have just changed over to winter schedules, running three services each way daily instead of five, and cutting out the 7.0 a.m. departure from here as well as the 10.0 p.m. arrival. Irish Sea Airways' Dublin-London service continues to give good results, and the number of travellers to and from the Continent who link up with the Irish line at Croydon is distinctly promising. During winter, it is the intention to give special cheap four-day-return facilities, with a view to bringing the great advantages of the service before the travelling public.

Somebody recently drew my attention to the legend, "NO PARK" written in large white letters on the roadway near a stony sort of bed in which a few languid and wizened shrubs had been planted by the airport authorities. It is true that these sterile plants, oppressed, perhaps, by Government control and subsidisation, were not very appealing, but it seemed to be unnecessary thus to label the area. Much later in the day an official appeared again with pot and brush, and added "ING" before retiring for a hard-earned tea.

A. VIATOR.

Boeing Flying Boat for Pan-American

ORDERS for the initial engineering and constructional work on some new long-distance flying boats have been placed with the Boeing Company by Pan-American Airways. The size of the machines and of the order is not known, but it has been revealed that the aircraft concerned are somewhat similar in general lay-out to the Martin Clippers, and that they will be provided with "sea-wings."

Mysterious and Unfortunate

DURING the last year Imperial Airways have suffered some very severe losses. Following the mysterious disappearance of the Boulton Paul *Boadicea* with a crew of two on September 25 while on a normal trip to Paris, one of the Armstrong-Whitworth Atalantas (*Athena*) has been burnt out at Delhi.

In the first case, all hope for the safety of the crew, consisting of Mr. A. C. Thomas, the pilot, and Mr. H. E. Percival, the wireless operator, has now been abandoned. In the second case, which occurred on September 28, it would seem that an oxygen cylinder was used in error for starting purposes.

First and Second Class

THE G.A.P.A.N.'s series of lectures in preparation for the First-Class Navigators' examination to be held in March, 1937, started on Tuesday, September 29, and are being held twice weekly from 6 to 8 p.m. Last week there were only three vacancies available for this class. Any pilot, therefore, wishing to avail himself of the opportunity to prepare for the March examination should apply immediately to the Secretary of the Guild at 61, Cheapside, E.C.2.

Lectures will be held, as usual, at the Imperial School of Air Navigation (87c, Notting Hill Gate, London, W.), for the Second-Class Navigators' examination, provided that there is a minimum of twelve pupils. These lectures will be held on Wednesday evenings and are of three hours' duration. The fee will be seven guineas, but a reduction of two guineas will be made to members and associates of the G.A.P.A.N. Applications must be made to-day at the latest and should be addressed to Mr. C. W. Martin at the above address (Park 6288).

Scotland to the Continent

IT has already been announced that North Eastern Airways would shortly reopen their services, using Croydon as a base, and the date for this start has now been fixed for November 2. Co-operation between the company and Air Dispatch, with increased facilities provided by the Air Ministry, has now made it possible for people in Scotland to reach Paris in six hours. Aberdeen Airways are also co-operating with the other companies and this will provide a connection to Thurso, the Orkneys and the Shetlands. Next year it is probable that a through daily service will be run from Lerwick, Shetland, to Paris.

Radio D/F stations have been, or are being, set up at Yeadon, Woolsington and Perth. As soon as similar facilities are provided at Aberdeen this city will be North Eastern Airways' Scottish terminus. In the meantime Perth will be used. Last year the service was operated to Edinburgh, but under great difficulties owing to the lack of radio, and even now Edinburgh has to be flown over. Air Dispatch are running a special service leaving Croydon to connect with North Eastern Airways' arrival from Perth, Newcastle and Leeds-Bradford, and it is understood that an amalgamation of the two concerns is likely.

Coast-to-Coast Sleepers

LAST week American Airlines opened its new overnight coast-to-coast service when, on September 25, the westbound Douglas DST left New York at 5 p.m. and the eastbound DST left Los Angeles at 4.30 p.m. Short stops are made at Memphis, Dallas, and Tucson, and the times for the runs scheduled at 17hr. 41min. and 15hr. 50min. respectively—the latter representing an average flying speed of more than 190 m.p.h.

Controlling Yeadon

WITH the opening of the new short-range D/F radio station at the Leeds-Bradford aerodrome, a controlled zone has been arranged. This is bounded by a circle of five miles' radius with a centre at Yeadon, but machines flying at a greater height than 3,000 ft. may ignore the zone.

In bad weather, therefore, pilots of machines without radio must obtain permission by telephone (Rawdon 134) before entering the zone. Machines with radio must first obtain permission in *all* weather conditions from Manchester's radio station, which is that normally worked by transport machines. The Yeadon station, in fact, is designed only for the assistance of pilots approaching this aerodrome in conditions of poor visibility. The call signs are "GJG" and "Yeadon," and the frequencies are 325 kc/s (923 m.) and 322 kc/s (932 m.) for ground-to-air and air-to-ground transmission respectively.

Confirmation

AS long ago as July 30 *Flight* hinted at the probability of an important amalgamation concerned with the operation of a British service to West Africa and South America. Since that time it has been semi-officially stated that British Continental Airways and British Airways would get together, and now we have an entirely official statement from B.C.A., which appears as follows—

At an extra general meeting of the shareholders of British Continental Airways last Monday a provisional agreement for the amalgamation of B.C.A. and British Airways was unanimously confirmed. By this agreement B.C.A. will acquire shares of B.A. as a consideration for that part of its business which relates to the operation of air lines. The fusion of the two companies has been brought about by their common interests. The company will be represented on the board of British Airways by three directors.

Difficulties in Ireland

A BREAKDOWN in the negotiations between local landowners and the Free State Government has held up the start of the work on the Transatlantic base in County Clare. Most of the land necessary has been negotiated for quite successfully, and it is understood that suitable offers have been made to the few remaining landowners. If no agreement is reached in the near future some adjustment may have to be made in the position of the site. Otherwise, of course, the Government has the power to acquire the land compulsorily. The Department of Industry and Commerce is not anxious to do this as it means a further delay.

The name of the base in Clare will be Kilconry, the name of a local church. Rynana, referred to previously, is a townland in the district surrounding the proposed site. A breakwater will be built out into the river which will connect Dernish Island with the mainland. Until the base is ready, Foynes, on the south side of the Shannon, will be used for the experimental flights.

Commercial Aviation

Aberdeen—Norway

ABERDEEN AIRWAYS, in the form of Mr. Gandar Dower, recently visited Stavanger, Norway, where the Sola aerodrome was examined. Aberdeen Airways has recently applied for permission to fly between Stavanger and Aberdeen, and there appears to be a good chance that the scheme will go through. Plans are being made to start the service in April of next year and to keep it going until September.

At the moment it is intended to use a D.H.86 for the service and the crossing should take little more than two hours. An Anglo-Norwegian company may be established later.

Aerial Posters

AS an indication of what is being done in the way of "aerial billposting," it is interesting to record that each of Air Publicity's Avro 504N machines constitutes a separate unit, with a pilot, an engineer, and a 30 cwt. Chevrolet truck and driver.

One such unit has put in 450 hours' flying since last April, mostly over seaside resorts. The only conditions under which it is impossible to operate are, of course, fog and very low cloud. It has been found that the machine tends to stall at a *lower* speed with the banner attached than without it, and the towing, with 400 ft. of rope and advertising matter, is usually carried out at 50 m.p.h.

AIR-MAIL COMMENTARY

A Pioneer Balloonist Honoured : Bromma Airport Stamp : New British Mails : International Awards to Collectors

By ALEC DAVIS

ONE of the world's first air travellers is commemorated on a French postage stamp recently issued. He is François Pilâtre de Rozier, who, with the Marquis d'Arlandes, flew 4½ miles in a hot-air balloon on November 21, 1783. The journey, from the Château de la Muette across the Seine to Montmartre, took seventeen minutes. Pilâtre had already made an ascent in a captive balloon of the same type.

A head-and-shoulder portrait of him, and a picture of the balloon flying with a downdraught of smoke, appear on the stamp (designed by C. Kieffer). It also bears the dates of Pilâtre de Rozier's life, 1754-1785—which suggests that it might have appeared a year ago, exactly a century and a half after his death.

A more recent event—the opening of Bromma Airport, duly chronicled in *Flight*—provided Sweden with an opportunity for a new issue, showing a monoplane (apparently a Junkers) over a map of Scandinavia. The stamps, of 50 öre value and designed by Olle Hjortzberg, were printed in strips instead of sheets, and are therefore imperforate along two sides.

Cuba, postally prolific, has produced five more air stamp designs in a set inscribed "Zona Franca del Puerto de Matanzas" (Free Port of Matanzas) and printed by Waterlow and Sons, Ltd. The 10 centavos value shows the U.S. airship *Macon* over the Puente de la Concordia.

Other American bridges appear on a new issue of Mexico, to celebrate the opening of an international highway from Mexico City to Nuevo Laredo. There are three ordinary and three air stamps, and on the 20 centavos is shown a machine bearing some resemblance, at least, to the Lockheed Electras used by Aerovias Centrales. The bridge on this stamp is the Puente Rio Corona.

More from France

France has produced two air stamps in rapid succession, both of 50 francs' value and both illustrating one of Air Bleu's mail-carrying Caudron Simouns. On the first (July 10), elaborately produced in blue on a paper patterned like a bank-note, with ornate frame to the picture, the faults that I noted in an earlier picture of this machine (*Flight*, April 10) have been corrected; but the second issue relapses, using again the faulty design, with only the indication of value altered.

From France, again, come two stamps to commemorate the aerial conquest of the South Atlantic. One of them (10 Fr.) bears in addition the explanatory words, "Centième traversée"—the hundredth crossing by the French mail service; otherwise, we might have been at a loss to know exactly what the "conquest" signified.

Monoplanes of greatly simplified design are shown on both stamps—one above a map of the route, the other above an old sailing vessel. Neither design is much credit to an artistic country.

Some changes in postal facilities are less conspicuous than stamp issues but no less useful. For instance, "Gatwick Airport, Horley, Surrey," is a brand-new postmark. And in South Africa mail can now be accepted at aerodromes on payment of a late fee of twopence. Covers are recognisable by the postmark placed on the back—"Capetown Municipal Air-port Wingfield 1 Jun 1936" is a first-day example.

In Austria the post office makes use of air mail easier by issuing envelopes and cards imprinted with an imitation air mail label and a stamp sufficient for postage within the country, with a space alongside for additional stamps for abroad.

The French, Swedish and French South Atlantic stamps referred to by Alec Davis.

Canada has opened an air service between Prince Albert, Sask., and the mushroom town of Goldfields, and the event was *not* heralded by notices to cover collectors and dealers, as most Canadian inaugurations are. Instead, it was over before the official announcement appeared, and as a consequence only about seventy letters went on the first flight.

Our British post office has never gone in for the whole-hogging publicity of Canada, and it is therefore less surprising to learn that on the first Doncaster-Amsterdam flight of July 1 K.L.M. carried only 227 covers actually posted in Doncaster. These all bear the postmark 7.45 a.m., July 1, as there was only one collection between 10.30 on the previous night and 7.45. Covers bearing other times, though they may be rightly dated, went by rail south and were flown from Croydon.

Mr. W. Lindsay Everard, M.P., the well-known private owner, was one of those who received gold medals at the recent International Philatelic Exhibition in New York for his collection of air post stamps. Other gold medals for air mail collectors went to Mrs. Anson McCleverty and Miss W. Penn Gaskell; a silver-gold to G. Leigh Walker; a silver to C. W. Fawdry (Siamese air mails); and bronze to Miss G. L. Collins (Persian air mails) and N. Hill (air labels).

* * *

The Car Show

FROM October 15 to 24 Olympia will be the scene of the Thirtieth International Automobile Exhibition.

In connection with the Show our associated journal *The Autocar* is publishing three special numbers. The first, October 9, will contain *The Autocar* Buyers' Guide, an invaluable issue to anyone contemplating the purchase of a new car; the second, October 16, will be a complete Show Report covering all the exhibits; and the third, October 23, will be a critical technical survey of the Show and the progress made during the past twelve months. The price of each of these special issues is 6d.

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"No better book than this could be written for the encouragement of amateur flying." *Sheffield Telegraph.*

"charming little book." *Flight.*

"a delightful book." *Leeds Mercury.*

"merits inclusion among the classics of the air." *Aeropilot.*

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MODELS

Models on Show : New Petrol Power Units : A Seaplane Record

By M. R. KNIGHT

The Model Engineer Exhibition

THE great event of the month has been The Model Engineer Exhibition, held at the Horticultural Hall, Vincent Square, Westminster. Model aeronautics had strong representation, almost every exhibit being a practical proposition.

The Society of Model Aeronautical Engineers, the body empowered by the Royal Aero Club to control model aeronautics in this country, restricted their exhibits to a few models which had achieved eminence during the year. The *pièce de résistance* should have been the elegant high-wing monoplane with which Mr. A. A. Judge, of T.M.A.C., won the Wakefield Trophy at Wayne Airport, Detroit, but, unfortunately, it was reported missing after a recent flight from Wimbledon Common. Its place was taken by a replica built by Mr. Judge himself. Another replica by Mr. Judge appeared on the stand of T.M.A.C., together with a partly built edition by Mr. Clements. All three attracted considerable attention.

Another S.M.A.E. exhibit was the *Hornet* low-wing racer with which Mr. H. E. White, B.Sc., of the Northern Heights Club won the *Flight* cup. He also showed an uncompleted monoplane flying-boat, a photograph of which appears on this page.

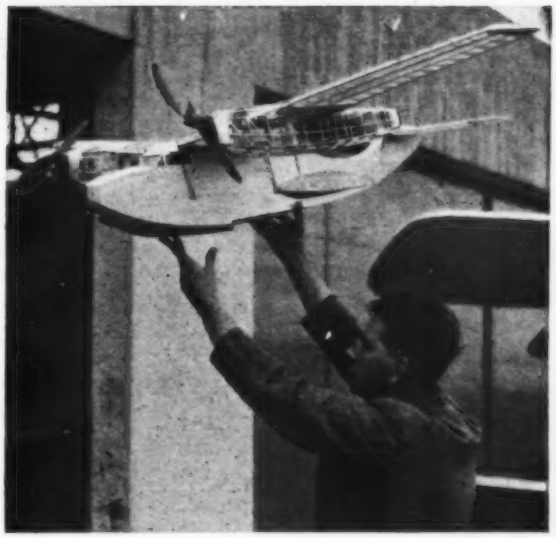
Knowing Mr. White's essential practicality, I feel that this model is worth watching. The hull, which is planked with balsa sheet, is to be covered with Jap silk doped with banana oil, and rendered waterproof inside and out. The airscrews are geared up from the twin-gear motors in the wing nacelles, securing a power duration of 45 seconds. Balsa, spruce and birch are used in the construction, and the estimated all-up weight is 32 oz.

Capt. C. E. Bowden showed a slightly tapered low-wing model with an Elf 2.4 c.c. two-stroke engine. There was also on view the high-wing monoplane with which Mr. R. Copland (Northern Heights M.F.C.) won the National Cup, and secured third place in the Wakefield Trophy contest. It is distinguished by having a straight-chord back-swept wing, and an unusually low thrust-line. Particulars of the various affiliated clubs were available on the stand, and their geographical position was indicated by flags on a large map.

A Fine Array of Models

THE Model Aircraft Club stand contained no fewer than twenty models, including petrol-engined types, scale models, a seaplane, a biplane, an Autogiro, and gliders, so that it is difficult to particularise. Popular vote amongst the members gave first place (and a Baby Cyclone petrol engine offered by the club president, Mr. E. N. Bray) to the retractable-airscrew shoulder-wing monoplane of Mr. W. L. Henery. A close runner-up was the beautifully constructed petrol-engined high-wing monoplane of Mr. R. J. Trevithick. Both these models have recently been described and illustrated in *Flight*. Other oustanding exhibits were a very beautiful Puss Moth, built by Mr. Hutchings to the sensible scale of 1 in. to 1 ft.; the straight-chord high-wing monoplane with which Mr. G. J. Liggitt won the Coupe de France; a petrol-engined high-wing model by Messrs. H. and H. G. Norman; and an uncompleted monocoque mid-wing glider by Mr. Dubbury. There was also a remarkable example of fuselage construction by that pioneer modellist, Mr. H. R. Weston, of Bognor Regis. The spaces between the numerous longerons and stringers were filled in with balsa sheet, the entire fuselage forming a shell in two parts. Demonstrations of airscrew carving were given by Mr. I. G. Brown, and Mr. Portsmouth showed a film of club activities.

Mr. W. Rigby's latest all-paper "interceptor" (17 oz.) achieves a duration of 11 sec. at 30 m.p.h. and has displayed unexpected aerobatic qualities.



Mr. H. E. White with his partly completed flying boat, photographed at the recent De Havilland garden party. (*Flight* photograph.)

The stand of the Northern Heights Model Flying Club contained numerous examples of Mr. H. E. White's handiwork, including a flash steam plant, and the hull and engine nacelle (complete with dummy radial), of a scale Supermarine Seagull V. There was also a very fine example of the Rippon Cruiser general purpose low-wing monoplane, built by Master Bird, a 14½-year-old member. Well constructed, and attractively finished in aluminium and two shades of blue, it dominated the stand. Excellent flights have been obtained. An ingenious flying boat hull was shown by Mr. Thomas. One hopes he enjoyed persuading plywood into a double bend!

A Super Sailplane

THE finest model aircraft exhibit in the competition section was a tapered gull-wing sailplane by Mr. E. W. Evans, of Leighton Buzzard. This exquisitely built and finished model had hinged ailerons, elevators and rudder. The fore part of the wings was covered with balsa veneer, and the entire model with thin Jap silk, clear doped. Glides over four minutes duration have been obtained. The machine well deserved the silver medal awarded. There were also an excellent Hawker Hart, a Leopard Moth, and a Vega Gull, the last-named rather spoilt by excessive dihedral.

Surely the most remarkable exhibit in the Exhibition was the tiny petrol-engine designed and constructed by Mr. Charles Desoutter. With a cylinder capacity of 1.4 c.c., one can easily accept its claim to be the smallest working petrol engine in existence. Despite the small size, there was a healthy compression.

Trade Exhibits

PREMIER Aeromodel Supplies, of Hornsey Rise, had a well-arranged stand on which they showed everything from the smallest component to complete models. Blue prints of well-known models, text books, aeronautical magazines, coloured dopes and cellulose paints, balsa sections, celluloid tubing, round and streamline, white and coloured tissues, Jap, oiled, and aluminiumed silk, model-making tools, airscrews, the famous Cleveland Scale Model kits, were some of the items displayed.

E. Gray and Son, Ltd., of Clerkenwell Road, had on view their well-known Grayspec petrol engine. Mounted in an attractive cantilever biplane was the new Grayson 3½ c.c. Gnome, which is about to be placed on the market. It is hoped to publish a description of this engine in the near future.

[*Continued overleaf.*

The S.M.A.E. Biplane Contest

THE last S.M.A.E. competition of the 1936 outdoor season was for biplanes with a total wing area not exceeding 200 sq. in. It was flown on September 6 on the grounds of the various affiliated clubs, and resulted in a win for Mr. S. R. Crow, of the Blackheath Model Flying Club. His lightweight model averaged 73.2 sec. on three rise-off-ground flights. Mr. F. Almond and Mr. C. Edwards, both of the North Kent Model Aircraft Society, averaged 42.85 and 42.26 sec respectively. There were fourteen competitors.

A New Seaplane Record

AT Wormwood Scrubs recently, Mr. G. J. Liggitt, of T.M.A.C., achieved a flight of 151 seconds with a seaplane model rising from the portable tank. The flight was 45 sec. longer than the previous best, and has been submitted to the S.M.A.E. for recognition as a British record. The machine was a straight-chord high-wing monoplane of about 39 in. span, and 2¾ oz. total weight, with two main floats and a small tail float, all of the pontoon type. The model was exhibited on T.M.A.C. stand at the Model Engineer Exhibition. On the same occasion Mr. A. H. Liggitt's seaplane flew for 153 seconds, but a slight maladjustment of the tail float upset the model's conformity to the fuselage formula, and rendered the flight null and void!

* * *

It is expected that some ten petrol-engined machines will take part in the big models pageant to be held next month by the Model Aeroplane Association of Australia, at Parafield Aerodrome in connection with the Centenary celebrations.

* * *

Enthusiasts in the Belfast district are asked to get in touch with Mr. J. Black, 11, North Circular Road, Belfast, with a view to forming a club.

THE INDUSTRY

Mollart Capital Increase

IT is announced that the nominal capital of the Mollart Engineering Co., Ltd., Thames Ditton, Surrey, has been increased by the addition of £26,000, divided into 15,000 redeemable preference shares of £1 each and 11,000 new ordinary shares of £1 each beyond the registered capital of £24,000.

Titanine Extensions

EXTENSIONS which add nearly 50 per cent. to the factory space at the Colindale works of Titanine, Ltd., have now been finally completed.

New plant is being installed which will enable the company to cope with the large volume of orders in hand. Owing to the expansion in aircraft production and the increased general demand for the company's industrial lacquers, the factory has been working to full capacity all through the present year.

About Aluminium Tubing

THE range of uses of aluminium tubing in aircraft construction—pilot tubing and handrailing, seat framing, shock-absorber legs, speaking tubes, induction and exhaust pipes, to name a few—gives point to a new booklet, "Aluminium Tubes and Pipes," issued by the British Aluminium Company, Ltd., Adelaide House, King William Street, London, E.C.4.

Common sizes of this form of the metal are set out, with weights calculated in pure aluminium, which do not greatly differ from weights of the special alloys in which tubes are more usually drawn for aircraft service.

Sqn. Ldr. Potts to Join Bristols

SQUADRON LEADER CHARLES H. POTTS, D.S.M., has just retired from the R.A.F. and is shortly joining the technical staff of the Bristol Aeroplane Co., Ltd. (engine department). Sqn. Ldr. Potts joined the R.N.A.S. in 1913, served in France throughout the war, and in 1921 joined the Directorate of Technical Development, where he built up the Power Plant Installation Department which now forms a very useful link between the aircraft and the engine designers. Sqn. Ldr. Potts is the inventor of the Vickers-Potts oil cooler which is now used so extensively.

NEW COMPANIES

In the notes below, for reasons of space, the "objects" of new companies are usually somewhat abbreviated.

A. W. WEYMAN AND PARTNERS LTD.—Private company, registered September 21. Capital, £1,000 in 500 "A" and 500 "B" shares of £1 each. Objects: to carry, on the business of insurance brokers and insurance and underwriting agents, and in particular brokers in aircraft insurance, etc. The subscribers are: Arthur W. Weyman, Airport of London, Croydon, Surrey, insurance broker; Geo. H. F. Storey, 103, Elmstead Avenue, Wembley Park, Middlesex, clerk. Arthur W. Weyman is the first director. Registered office: Airport of London, Croydon, Surrey.

CHANGE OF TITLE

LEICESTERSHIRE FLYING POU CLUB LTD. (16, New Street, Leicester).—Name changed to County Flying Club Ltd., on September 11, 1936.

WRIGHTSON AIRCRAFT SALES LTD. (Heston Airport, Hounslow, Middlesex).—Name changed to Malcolm and Farquharson Ltd., on September 12, 1936.

COVENTRY (CIVIL AVIATION) LTD (105, Little Park Street, Coventry).—Name changed to Coventry (Civil) Aviation Ltd., on September 15, 1936.

HELIGIRO (PARENT) COMPANY LTD. (Aeronautical engineers, etc. Regina House, 40, Great Eastern Street, E.C.2.)—Name changed to Nagler Heligiro (Parent Company Ltd., on September 11, 1936.

PUBLICATIONS RECEIVED

Poppy Day Report, 1935. Issued by British Legion Appeals Department, 29, Cromwell Road, London, S.W.7.

Determinazione della lunghezza ridotta degli alberi a gomito, by Dott. Ing. Piero Benzi. Industrie Grafiche Italiane Stucchi, Milan.

Einführung in die Mechanik des Fluges, by Wilhelm Müller. Price 4.80 Rm. Dr. Max Jänecke, Verlagsbuchhandlung, Leipzig.

Evening Courses in Engineering. Issued by the Northampton Polytechnic, St. John Street, London, E.C.1.

Prospectus of the Northampton Engineering College. Issued by the Northampton Polytechnic, St. John Street, London, E.C.1.

Survey of Imports, Raw Materials, and Synthetic Products, and their Relationship to Industries, with special Reference to the Position in the Humber Area, by Arnold R. Tankard, F.I.C. (City Analyst, Hull). Price 2s. 6d. City of Hull Development Committee, Guildhall, Hull.

Aeronautical Research Committee Reports and Memoranda. No. 1682: Effect of Weight on Take-off and Landing, by E. Finn and S. P. Osborne. Price 1s. H.M. Stationery Office, Adastral House, Kingsway, London, W.C.2.

The Flying Shadow, by J. Llewelyn Rhys. Price 7s. 6d. Faber and Faber, Ltd., 24, Russell Square, W.C.1.

Who's Who in British Aviation, 1936. Price 6s. Bunhill Publications, Ltd., 2, Bloomsbury Place, W.C.1.

Aeronautical Research Committee Reports and Memoranda. Report No. 1681: Measurement of Profile Drag by the Pitot-Traverse Method, by The Cambridge University Aeronautics Laboratory. Price 3s. No. 1690: Stressing of Aeroplane Wings due to Symmetrical Gusts, by L. W. Bryant and I. M. W. Jones. Price 2s. No. 1692: Rolling-up of the Surface of Discontinuity behind an Aerofoil of Finite Span, by F. L. Westwater. Price 2s. No. 1696: Heat Dissipation of Ethylene Glycol Radiators and Comparison with Water Radiators, by C. Anderton Brown and F. G. Barlow. Price 2s. All from H.M. Stationery Office, Adastral House, Kingsway, London, W.C.2.

Flight to Hell, by Hans Bertram. Price 10s. 6d., Hamish Hamilton Ltd., 90, Great Russell Street, London, W.C.

L'Annuaire de L'Aviation Yougoslave. Published at Zorza Klemansoa 4/IV, Belgrade.

Douglas Aircraft Catalogue, Douglas Aircraft Co., Inc., Ocean Park Boulevard, Santa Monica, California.

Air Powers and Armies, by J. C. Slessor. Price 10s. 6d., Humphrey Milford, Oxford University Press, Amen House, Warwick Square, London, E.C.4.

Nearing the Abyss: The Lesson of Ethiopia, by Lord Davies. Price 3s. 6d., Constable & Co., Ltd. 10–12, Orange Street, London, W.C.2.

Rigging and Airframes, by J. Campbell Corlett. Price 5s. Sir Isaac Pitman & Sons Ltd., Parker Street, Kingsway, London, W.C.2.

AERONAUTICAL PATENT SPECIFICATIONS.

(The numbers in brackets are those under which the Specifications will be printed and abridged, etc.).

(Published September 24, 1936.)

6254. VICKERS (AVIATION), LTD., and WALLIS, B. N.: Structure of fuselages, wings, and other bodies of aircraft (452,726).

6404. GERARD, I. J.: Reinforcement of stressed-skin structures such as monocoque fuselages, hulls, wings and the like components of aircraft (452,516).

6433. SIEMENS APPARATE UND MASCHINES GES.: Systems for steering craft, more particularly aircraft (452,728).

23786. FAIREY, C. R.: Metal airscrews (452,611).

33633. SEBIA, SOC. D'EXPLOITATION DE BREVETS POUR L'INDUSTRIE L'AVIATION, ET L'AUTOMOBILE.: Air compressors (452,746).

3916. SOC. D'ETEDES POUR L'AVIATION: Airscrew having an automatically variable pitch (452,635).

10160. RHODIUS, R.: Screw-propellers for aircraft (452,841).

(Published October 1, 1936.)

3388. YOXALL, J., and PROPELLO INVENTIONS, LTD.: Power transmission for aircraft. (452,922).

9384. GENERAL ELECTRIC CO., LTD. DAMANT, E. L. B., and VILLIERS, W. A.: Aircraft landing lights (452,933).

13189. SHAMBERGER, G. A.: Aeroplanes (452,880).

28160. MUSCHLER, F.: Aerofoils (453,030).

9873. PLUNKETT, D. L.: Seaplanes, flying boats and the like (452,989).

(Published October 8 1936.)

13343. BENDIX AVIATION CORPORATION: Gyroscopic indicating devices (453,238).

31939. BAUMAN, DR. K. and ETTINGER, A.: Method of and means for assisting the landing of aircraft (453,255.)

1371. ASKANIA-WERKE AKT.-GES. VORM, CENTRALWERKSTATT DESSAU UND C. BAMBERG FRIEDENAU: Gyroscopes (453,259).